

Figure 1

10066955-033406

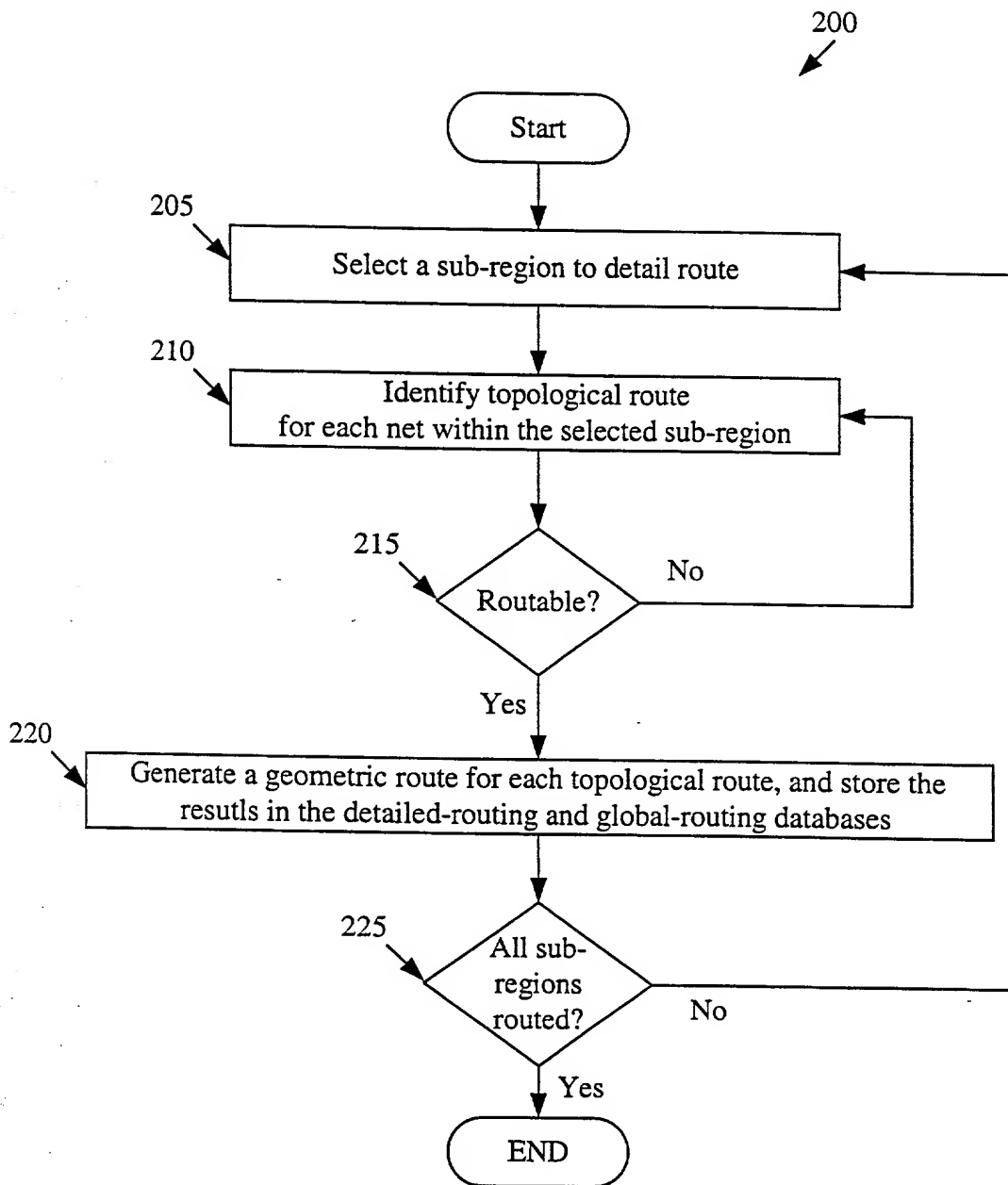


Figure 2

FIG. 3

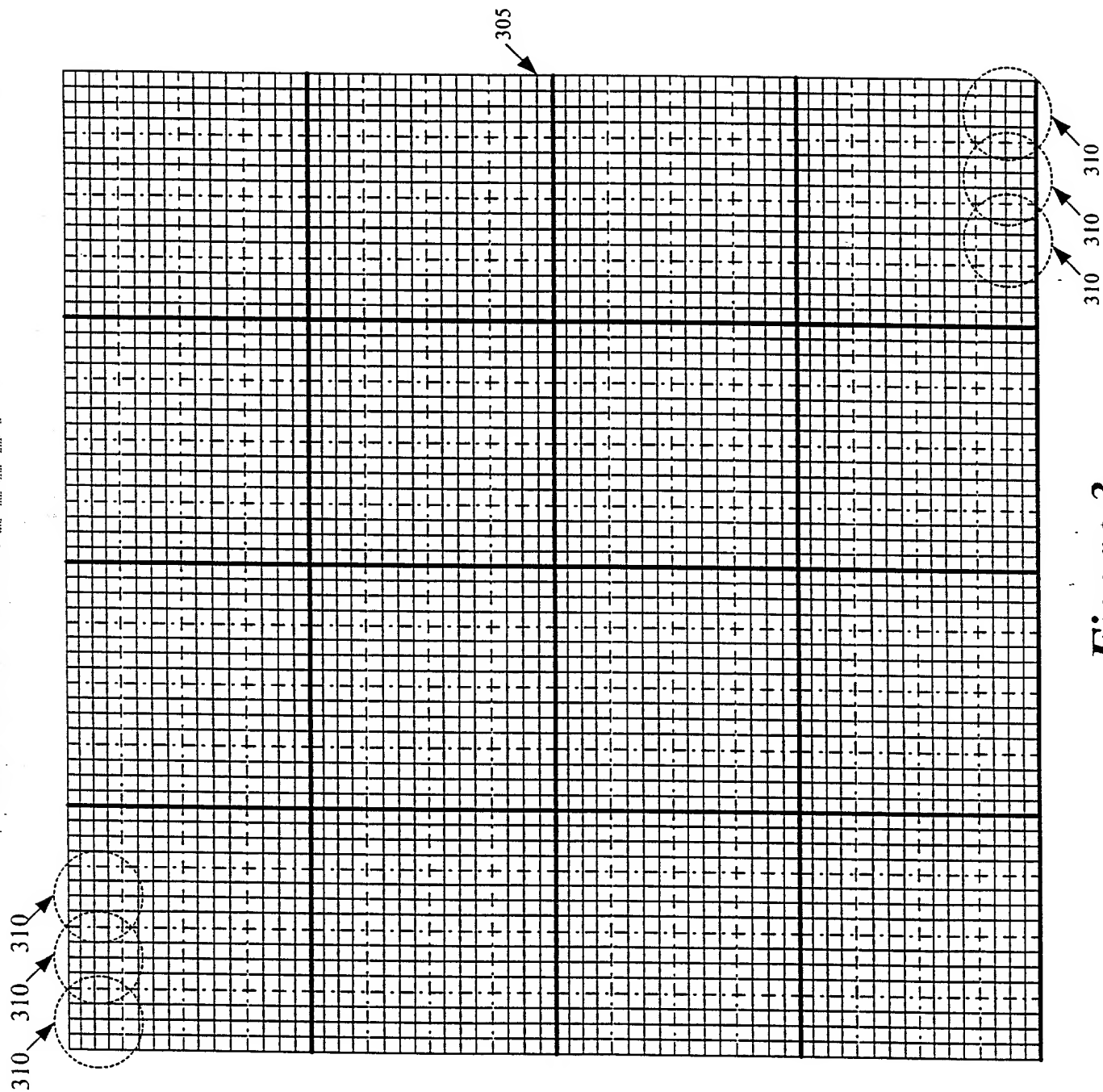


Figure 3

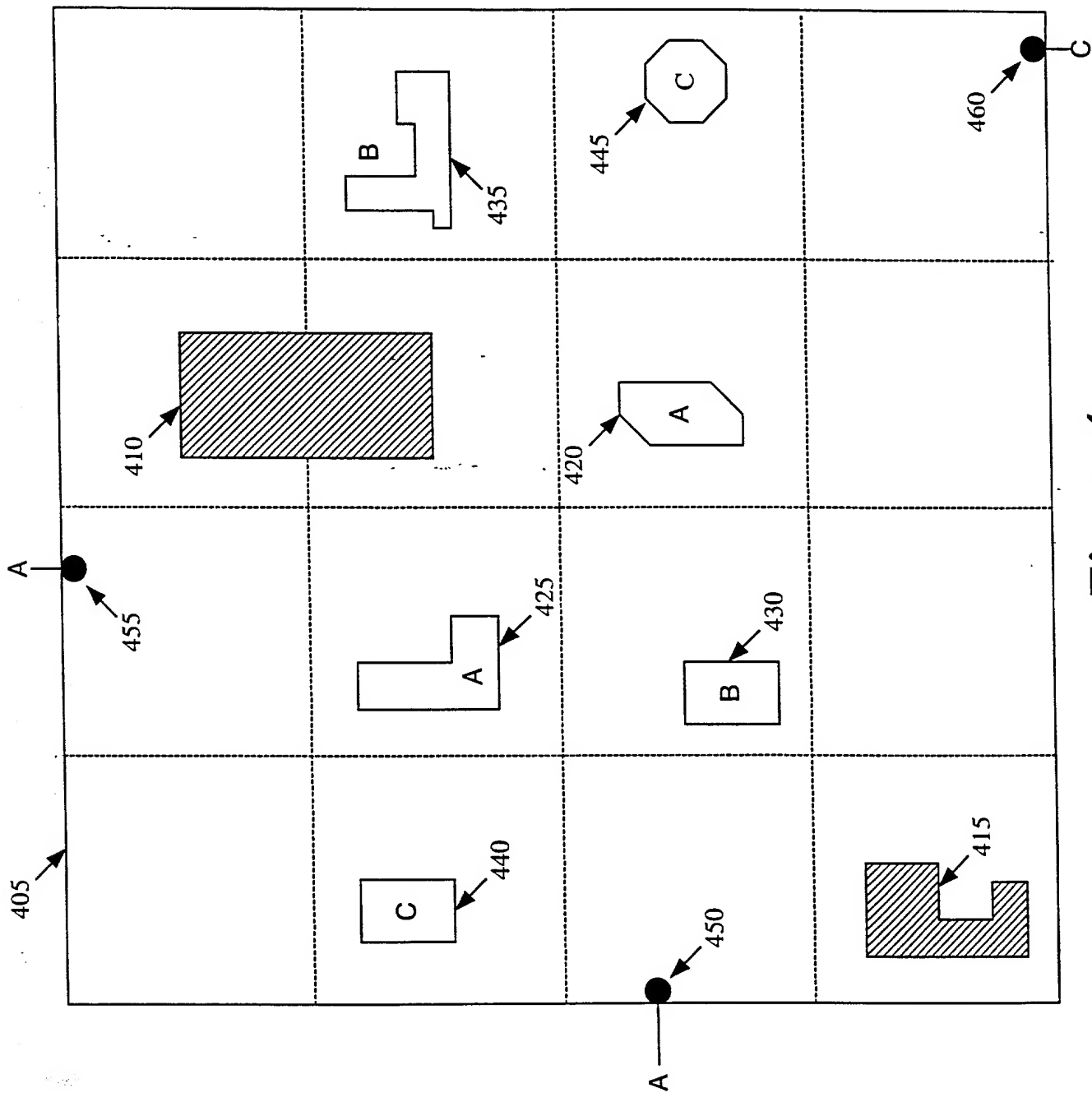


Figure 4

2012-03-20 15:00:00

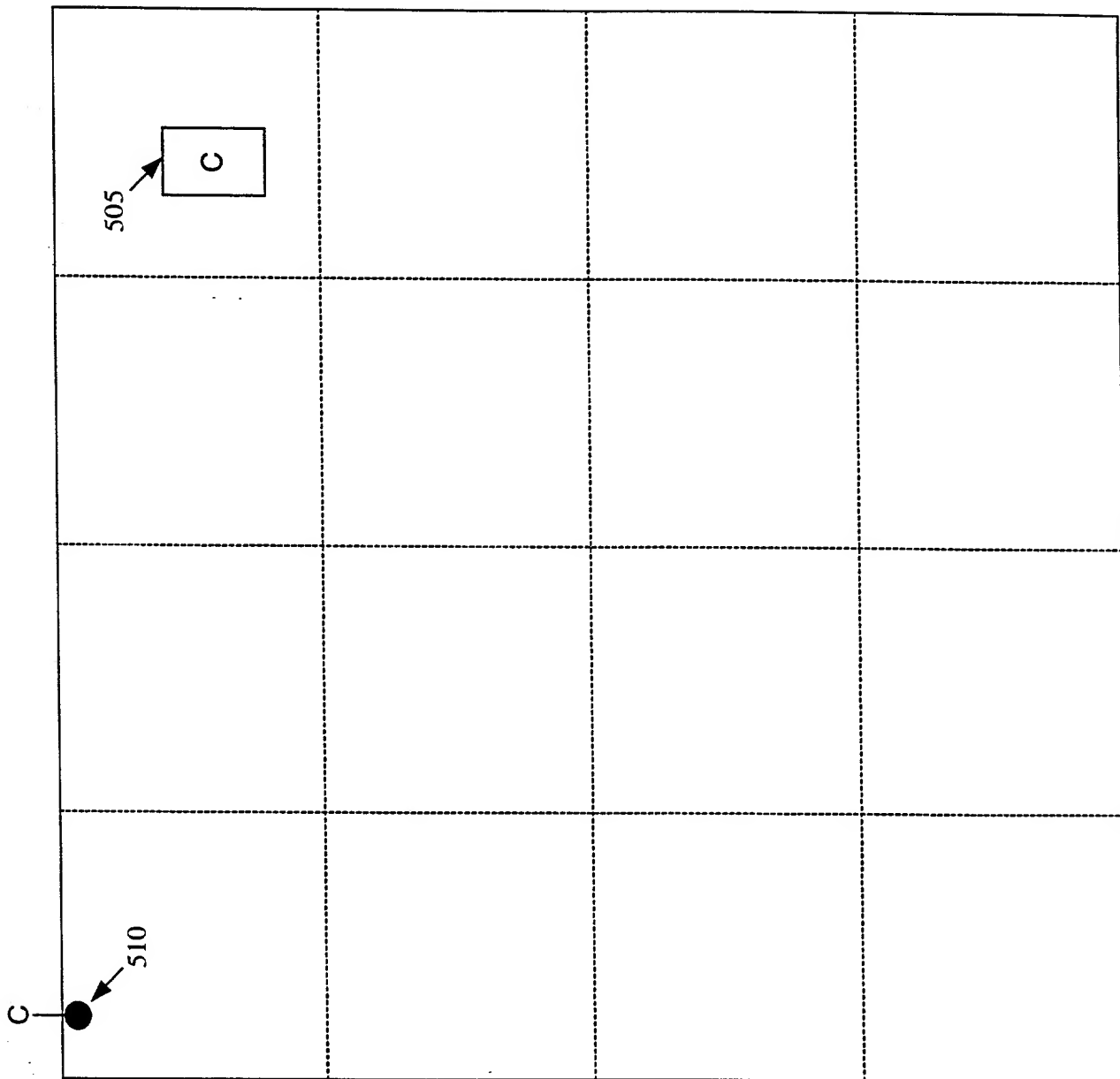


Figure 5

```

-List of Geometries
  --Each Geometry including a sequence of points & layer assignment
-Bounding box of the region
-Array of layer properties
  --Minimum wire size
  --Minimum spacing
  --Via sizes
  --Cost/Unit
-Netlist specifying a number of nets
  --Each net specifying a set of pins
    --Each pin specifying a set of ports
    --Each port specifying a set of geometries

```

Figure 6

```

-List of Geometries
  --Each Geometry including a sequence of points & layer assignment
    --List of connection nodes inside each pin geometry
-Bounding box of the region
-Array of layer properties
  --Minimum wire size
  --Minimum spacing
  --Via sizes
  --Cost/Unit
-Netlist specifying a number of nets
  --Each net specifying a set of pins
    --Each pin specifying a set of ports
      --Each port specifying a set of geometries
-For each layer, a graph specifying
  --Nodes
  --Edges
  --Faces

```

Figure 7

| Face |
|---|
| <ul style="list-style-type: none">-Reference to 3 edges-Reference to 3 nodes-Up to two references for up to two face item |

800

| Edge |
|---|
| <ul style="list-style-type: none">-Two references for up to two faces of the edge-Capacity-Flow-Constrained-Linked list of items on the edge starting with one of the edge's nodes and ending with its other node |

900

Figure 8

Figure 9

| Node |
|---|
| <ul style="list-style-type: none"> -Net Identifier -One or more planar-path references to adjacent topological items in the same planar path -A pair of via-path references to up and down topological via items -A references to list of edges connected to the node -For each edge, an edge reference to the next or previous topological item on the edge -A reference to the geometry of the node -Vertex number identifying the vertex of the geometry -Location of the node |

1000

Figure 10

| Edge Item |
|--|
| <ul style="list-style-type: none"> -Reference to its edge -Net Identifier -A pair of planar-path references to adjacent topological items in the same planar path -A pair of edge references to the next and previous topological item on the edge |

1100

Figure 11

| Face Item |
|---|
| <ul style="list-style-type: none"> -Reference to its face -Net Identifier -Up to 3 planar-path references for adjacent topological items in the same planar path -A pair of via-path references for up and down topological via items -Bounding polygon that defines legal face item locations -Constraining Points and Distances |

1200

Figure 12

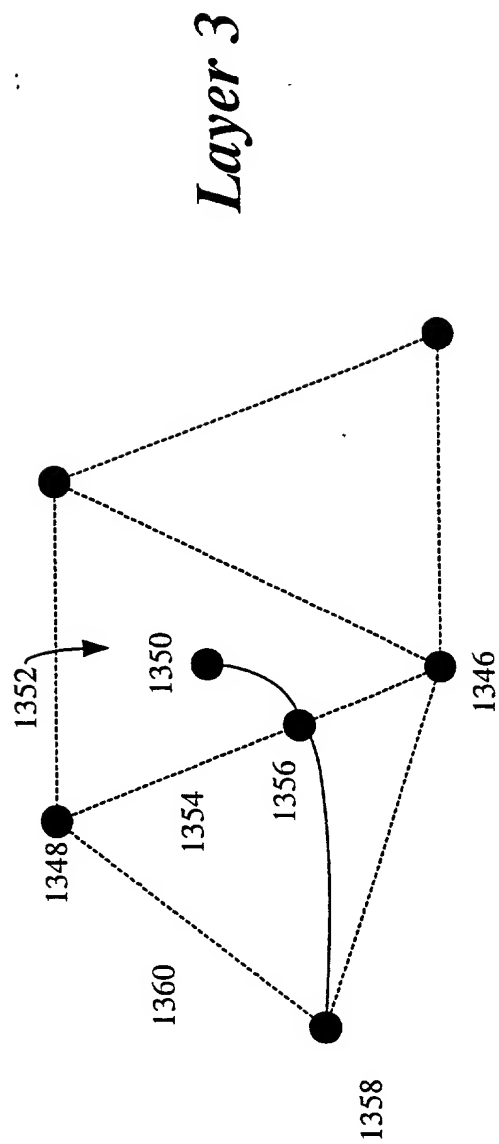
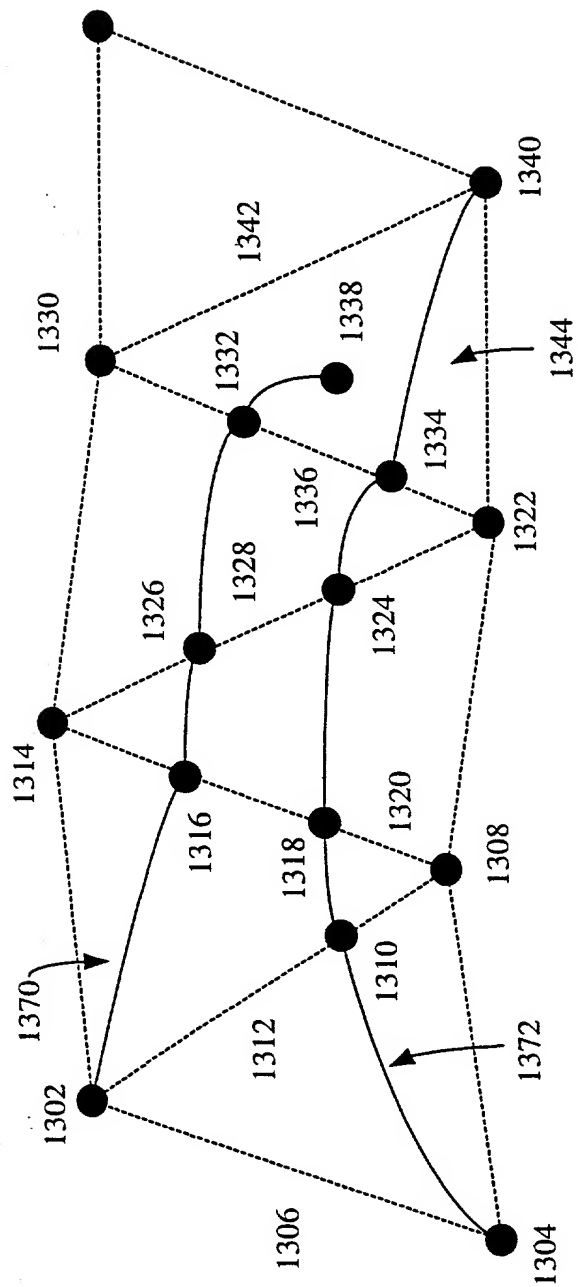


Figure 13

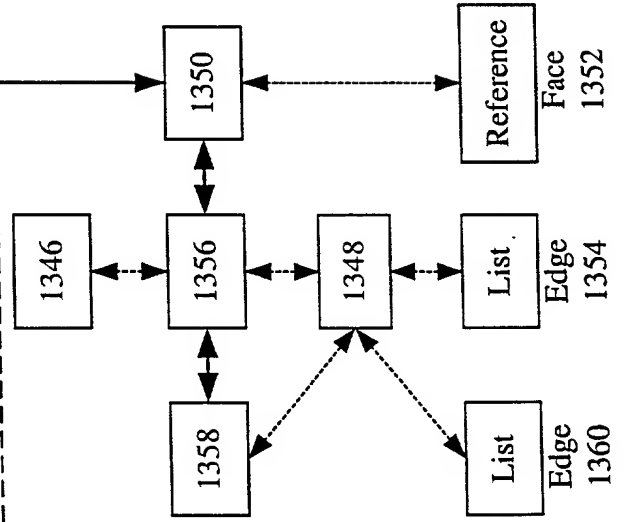
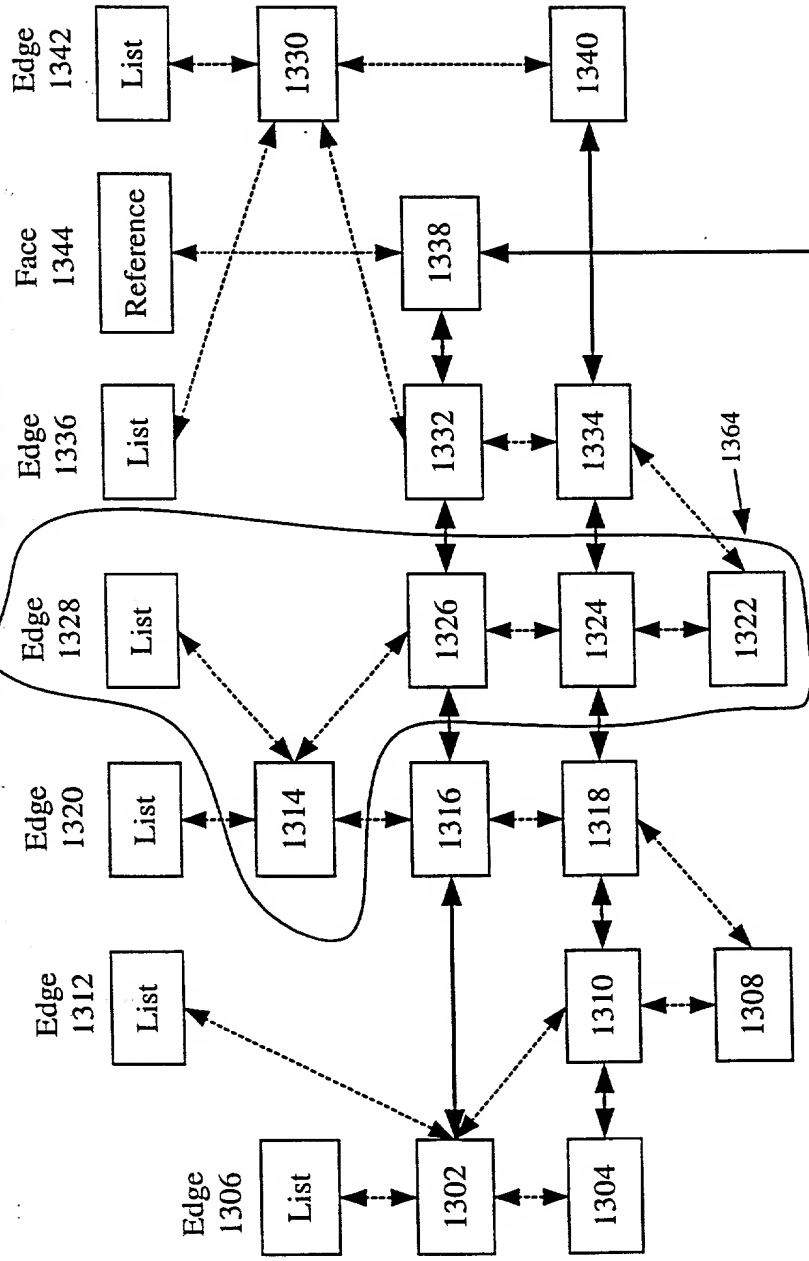


Figure 14

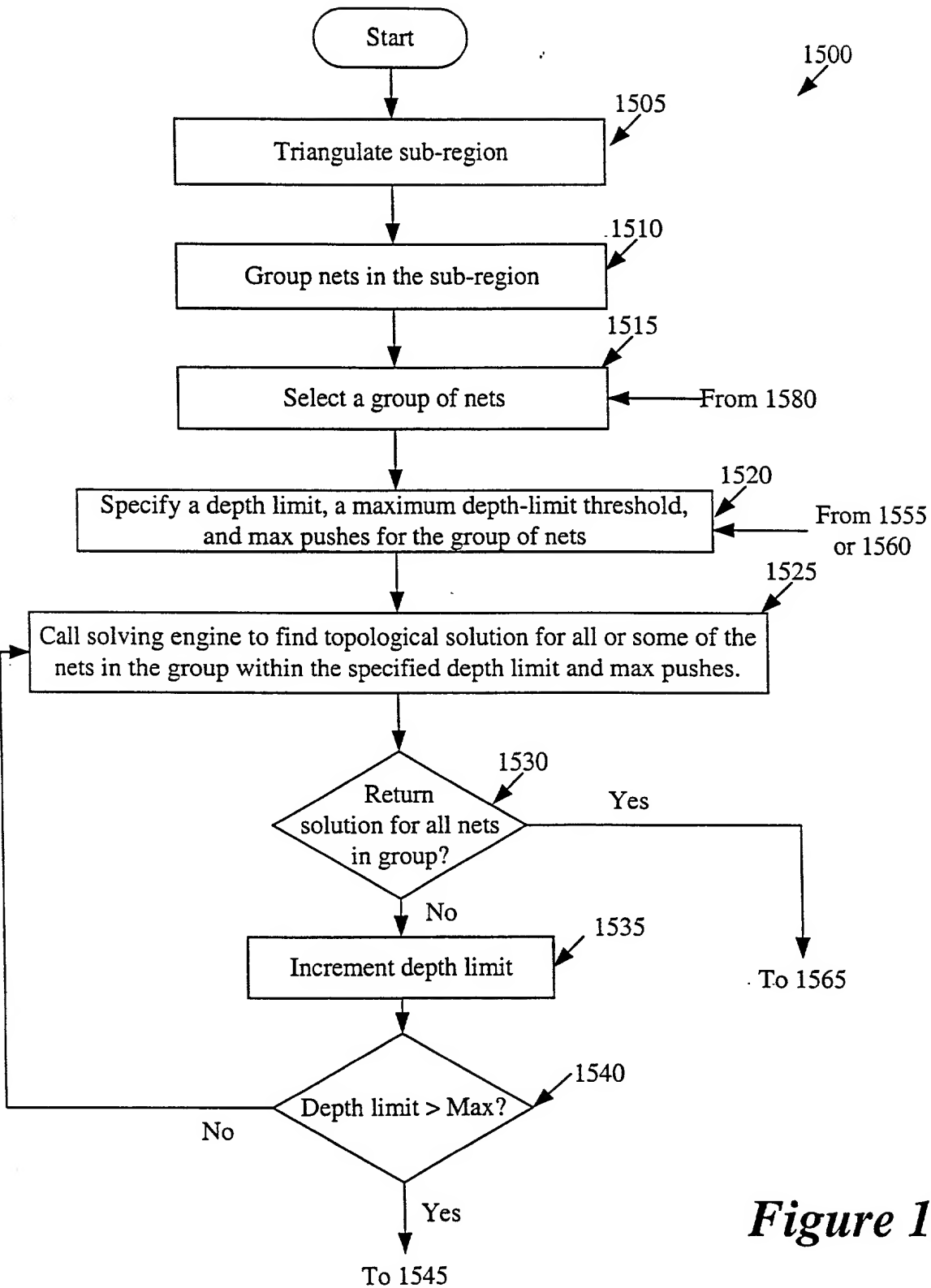


Figure 15A

Figure 15: Figure 15A
Figure 15B

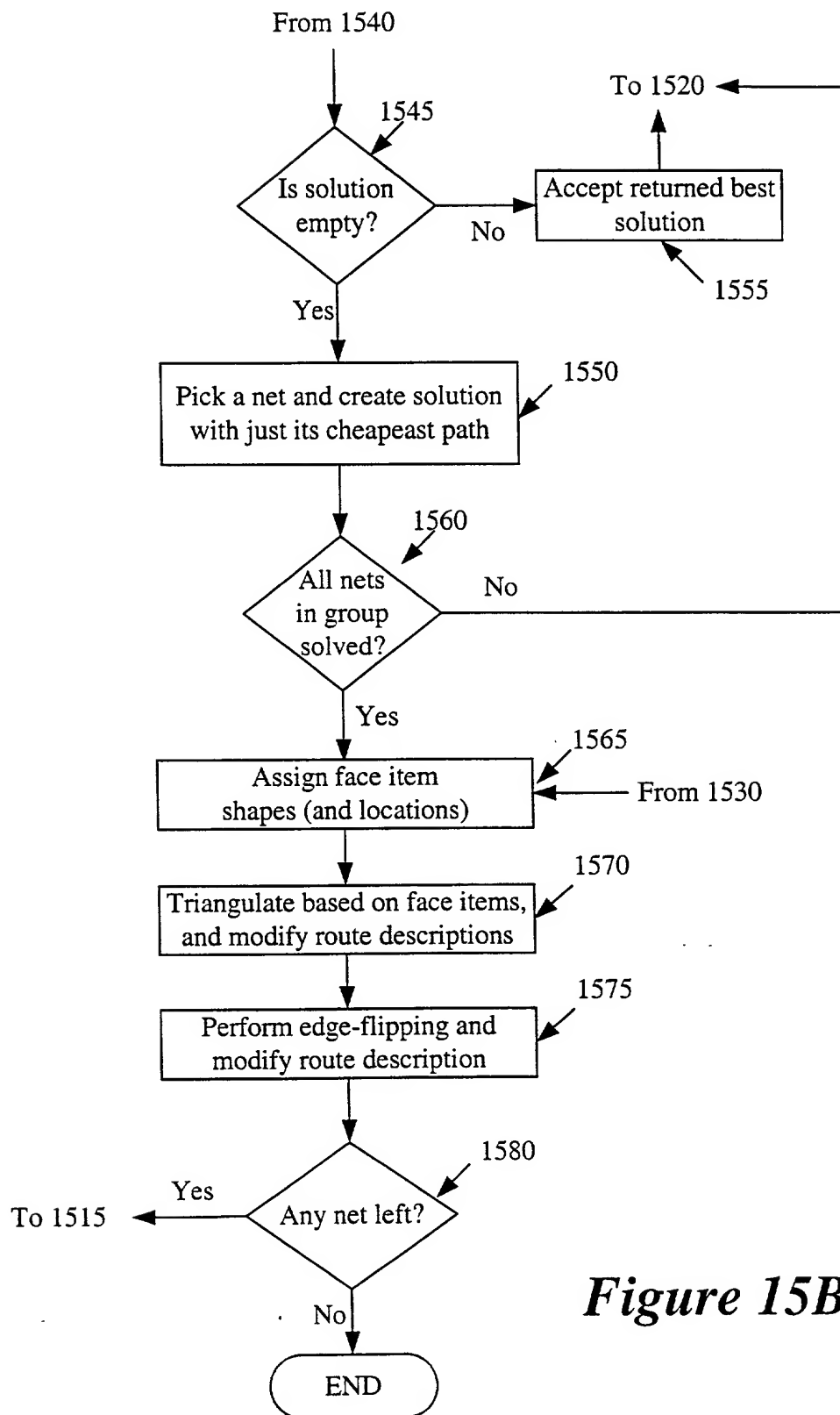


Figure 15B

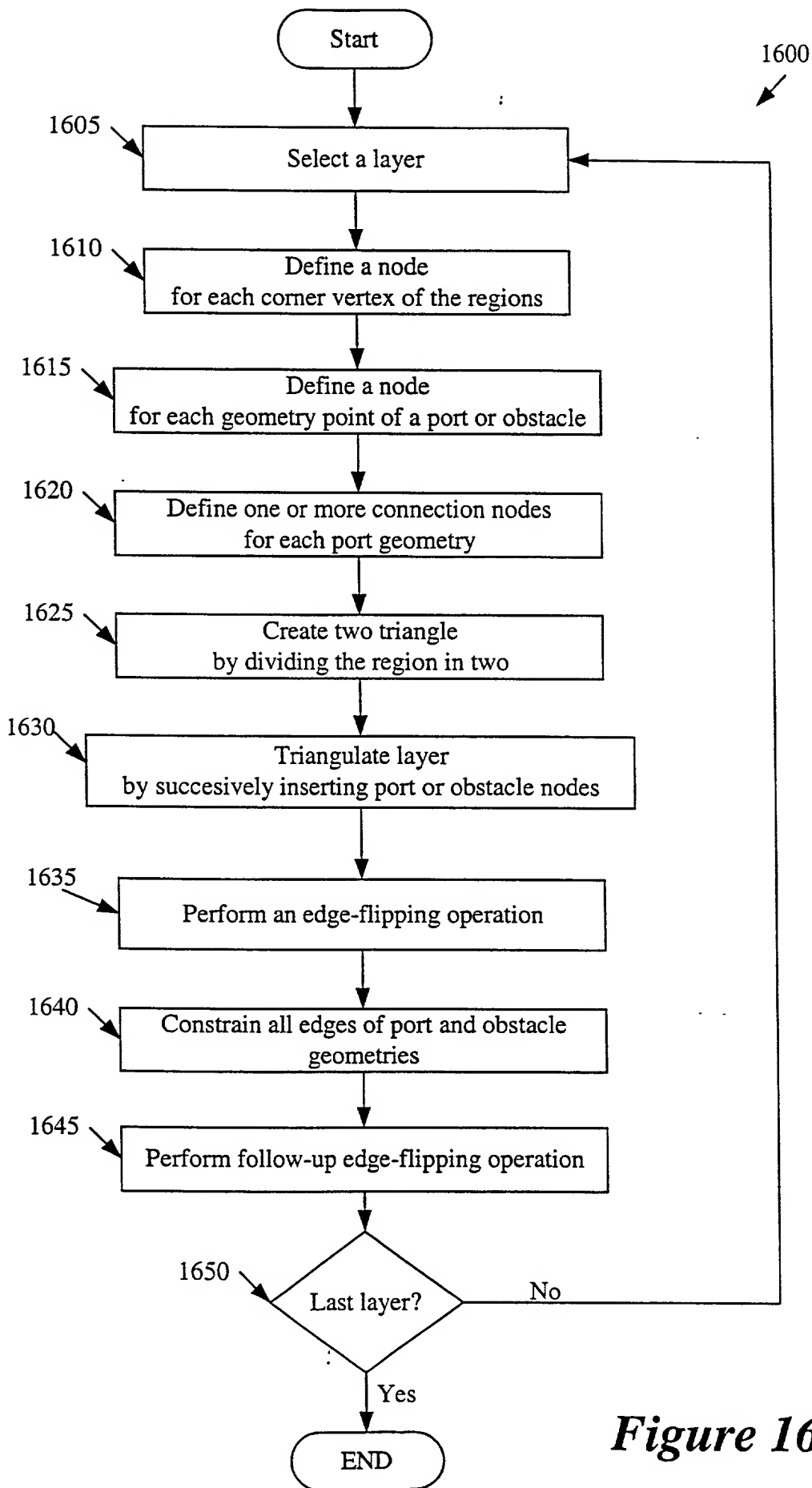


Figure 16

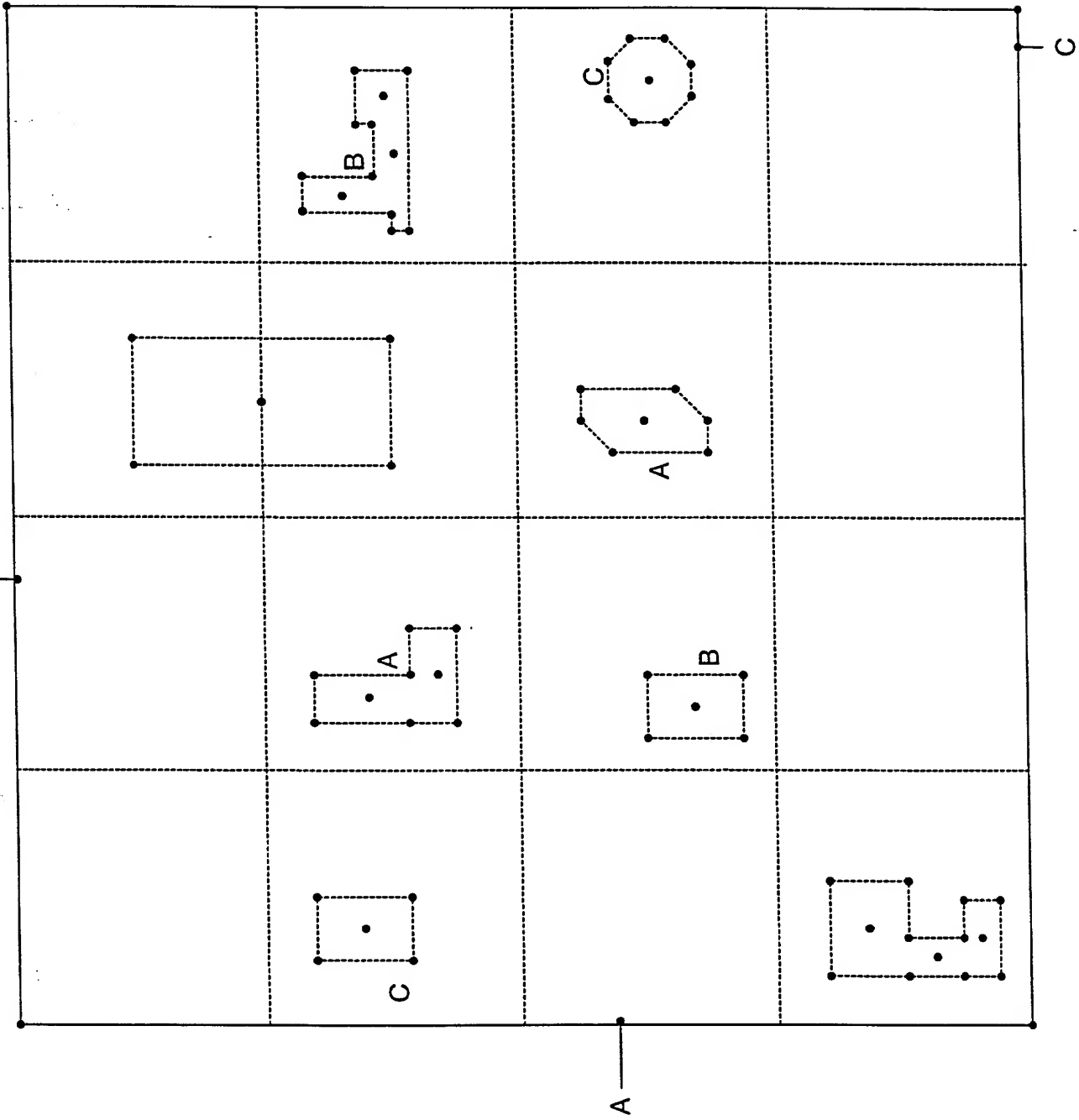


Figure 17

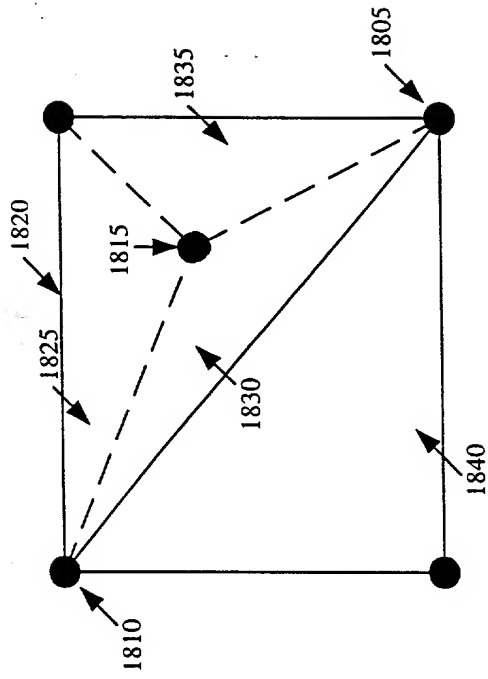


Figure 18

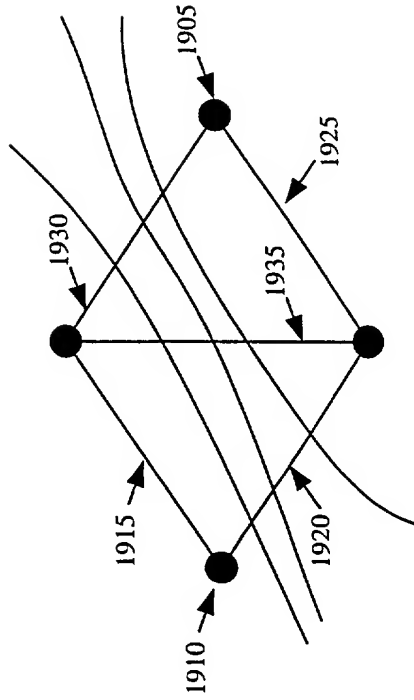


Figure 19

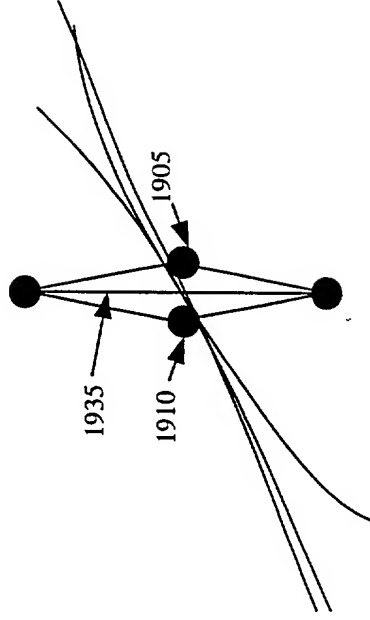


Figure 20

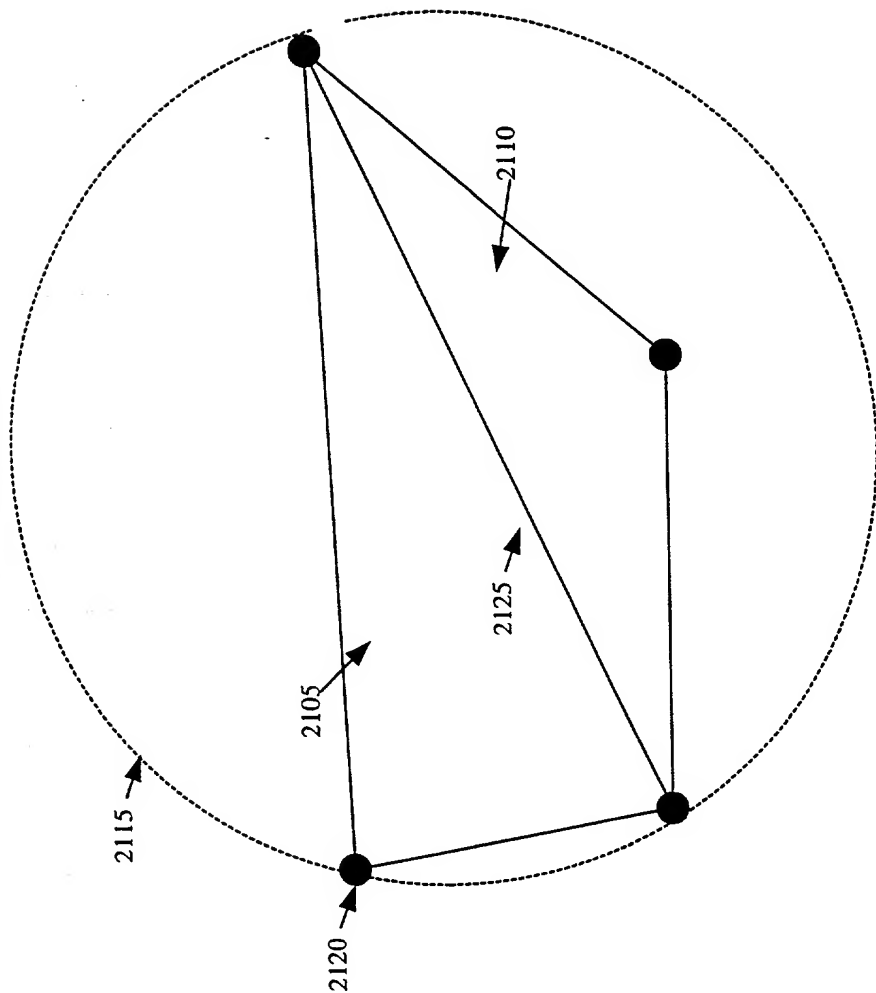


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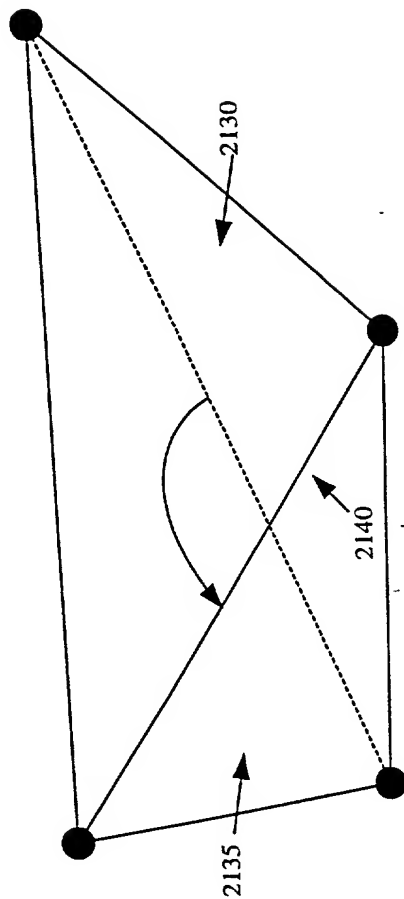


Figure 22

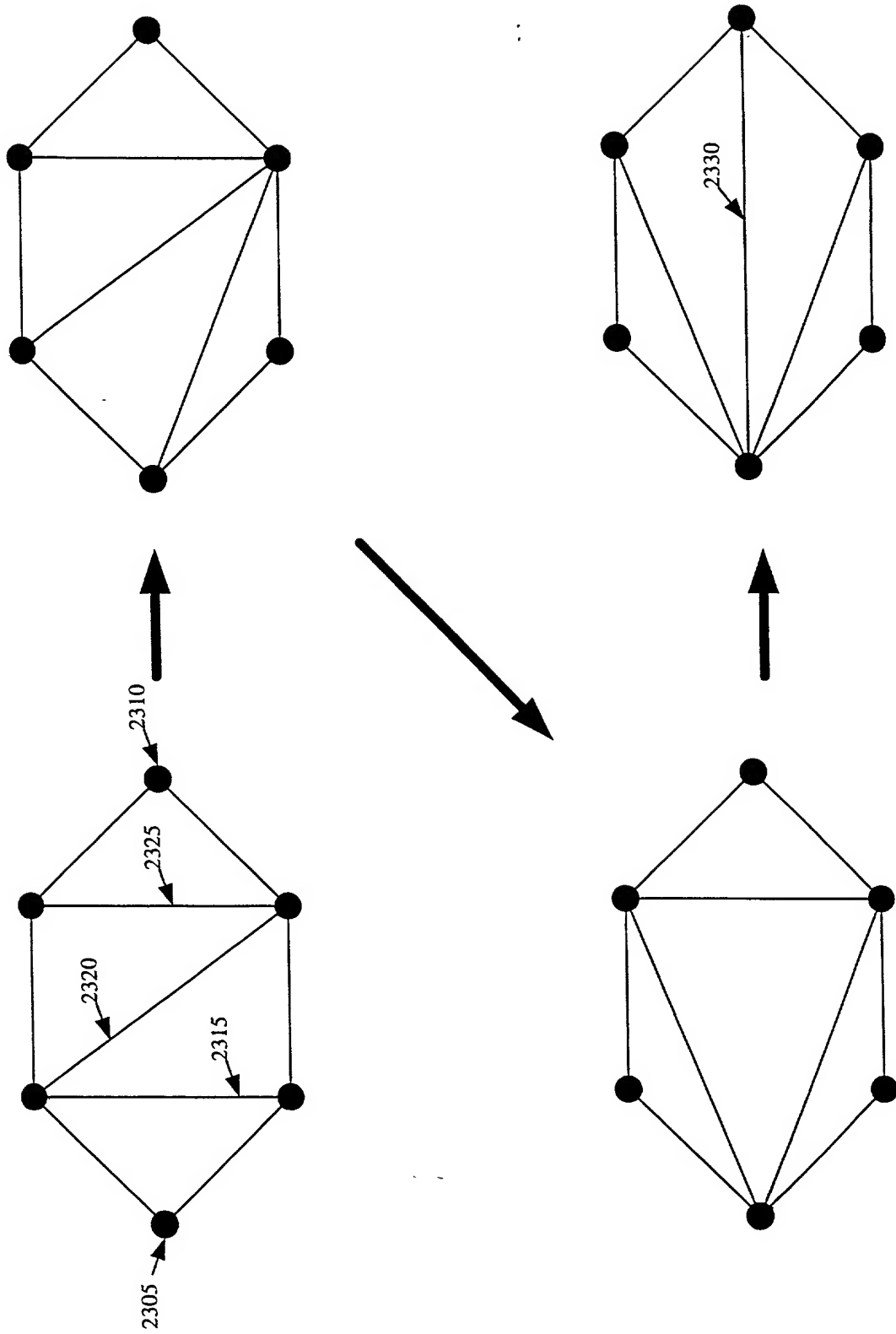


Figure 23

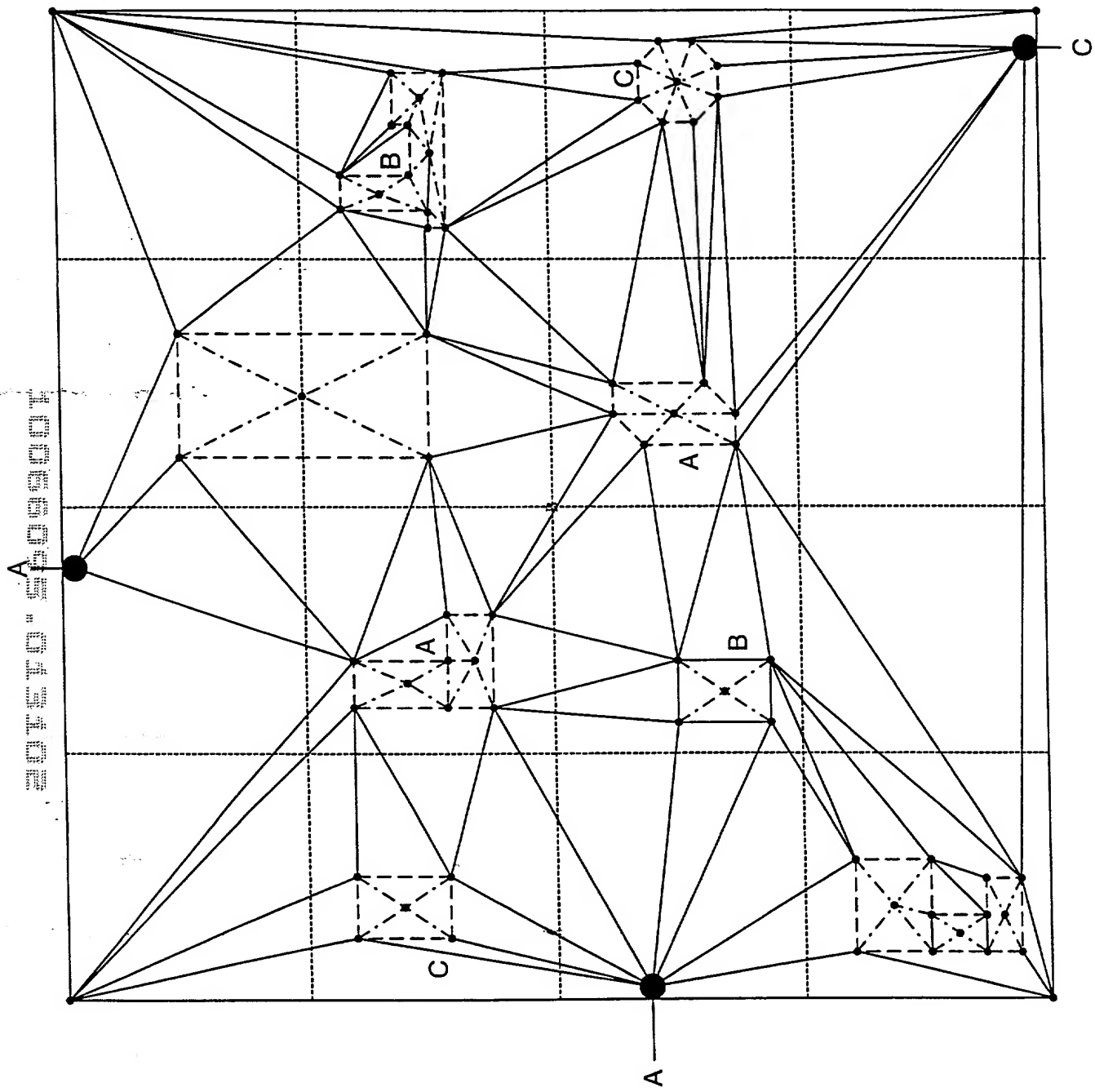


Figure 24

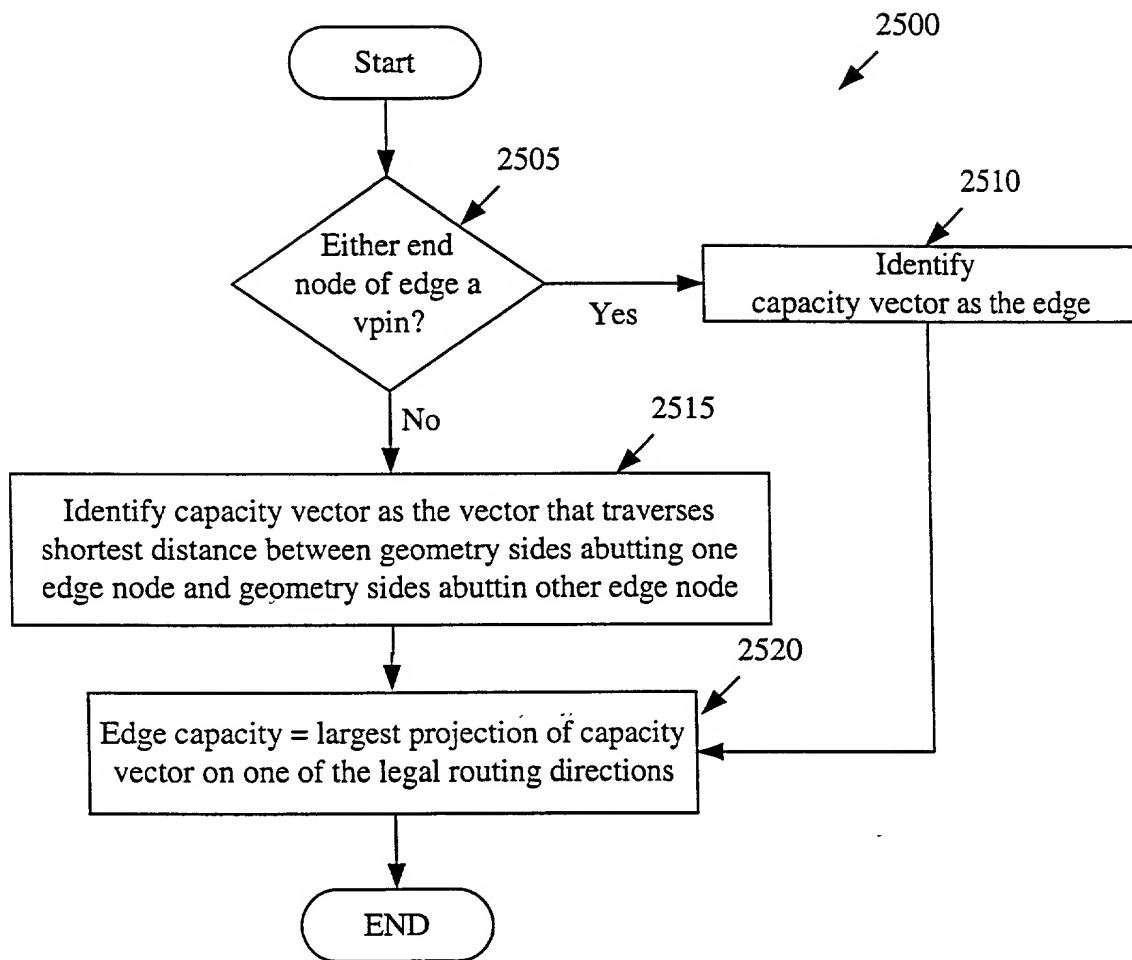


Figure 25

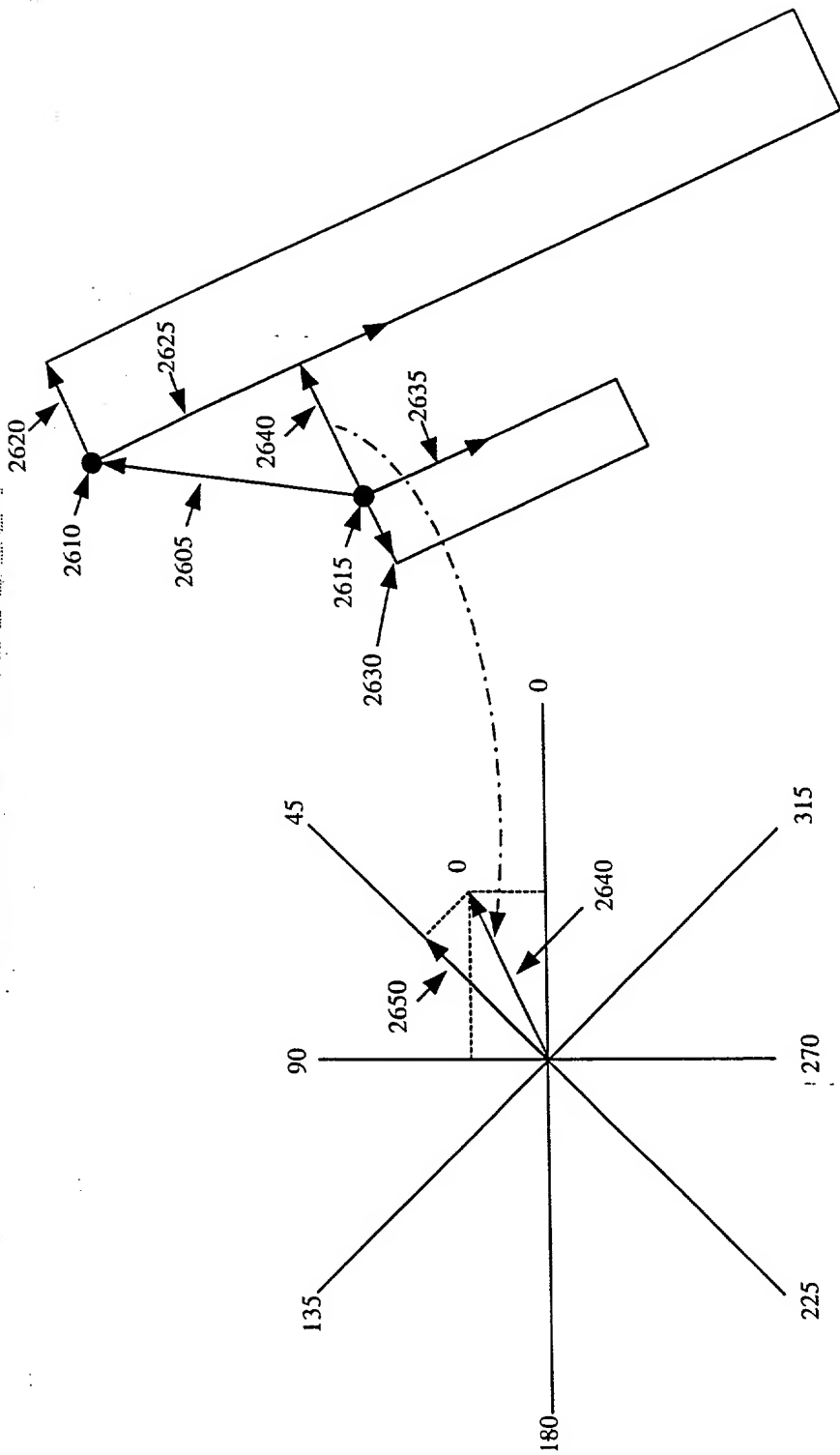


Figure 26

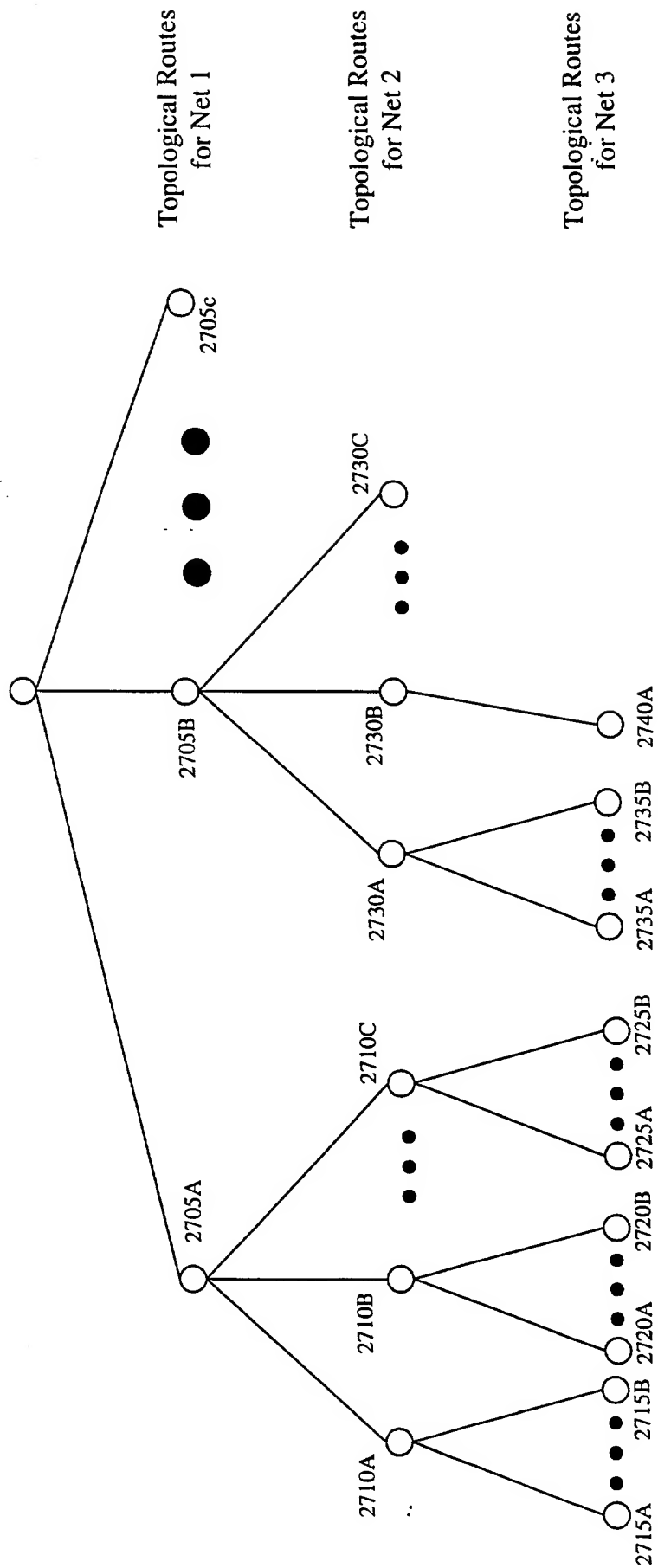


Figure 27

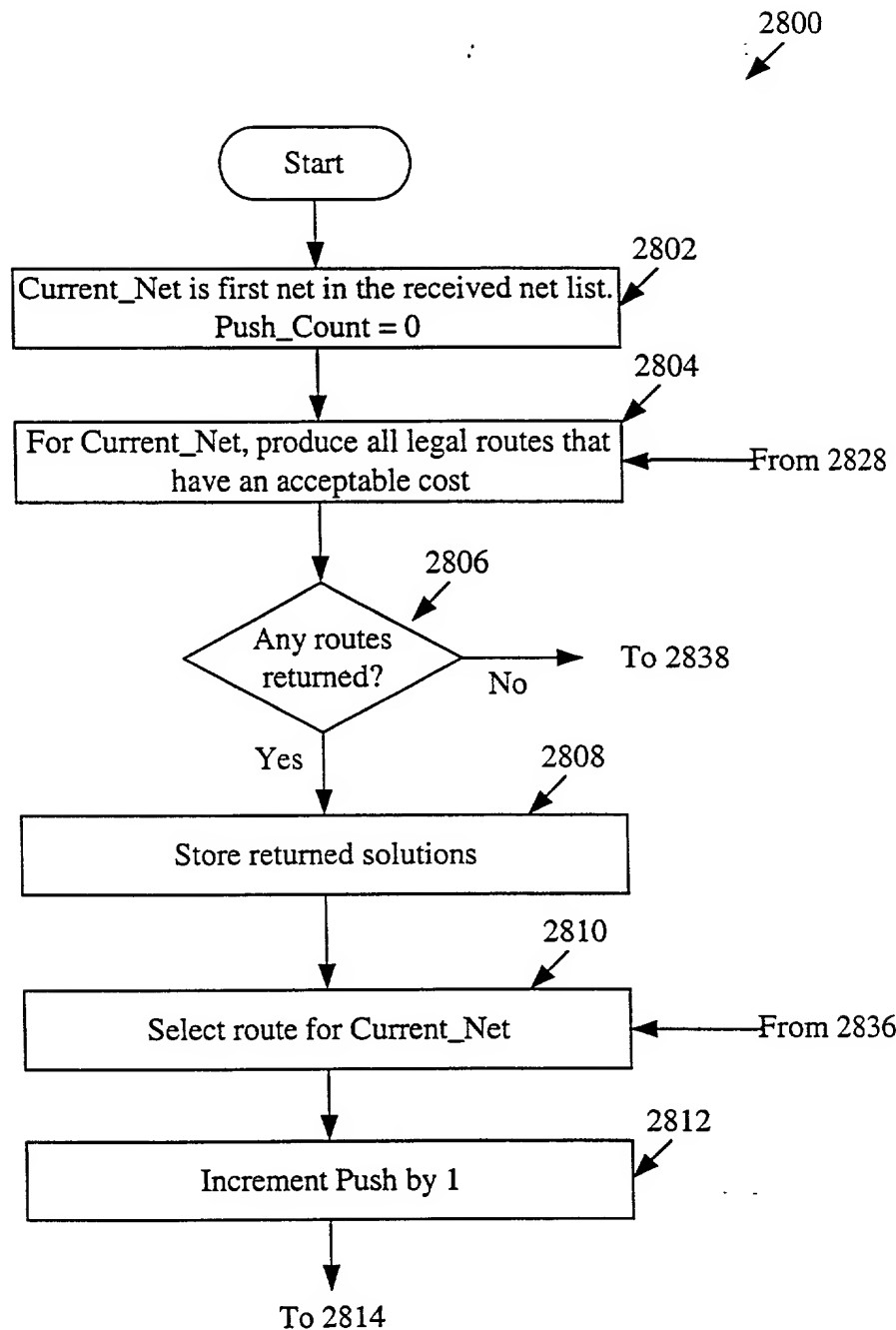


Figure 28A

Figure 28: $\frac{\text{Figure 28A}}{\frac{\text{Figure 28B}}{\text{Figure 28C}}}$

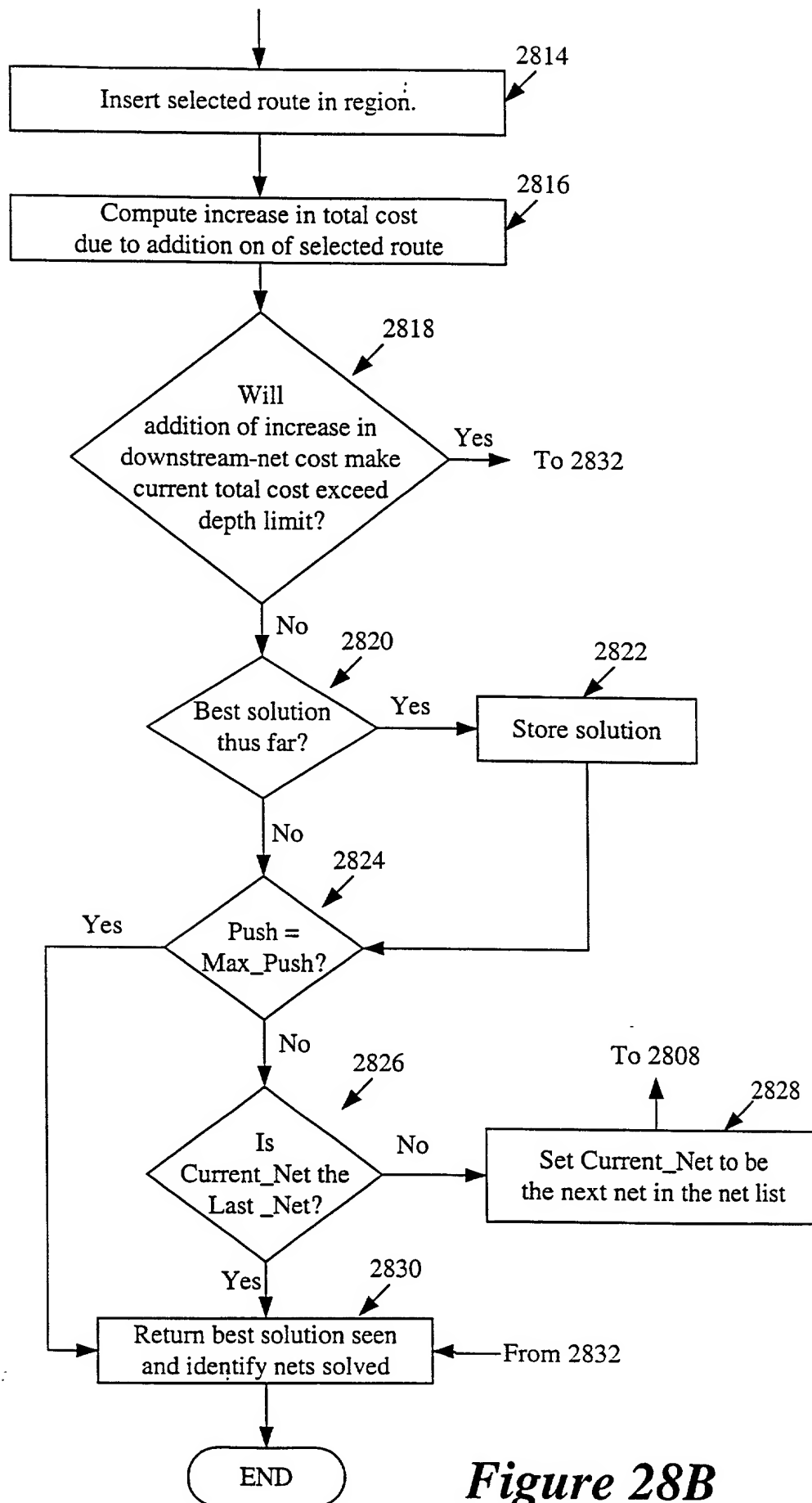


Figure 28B

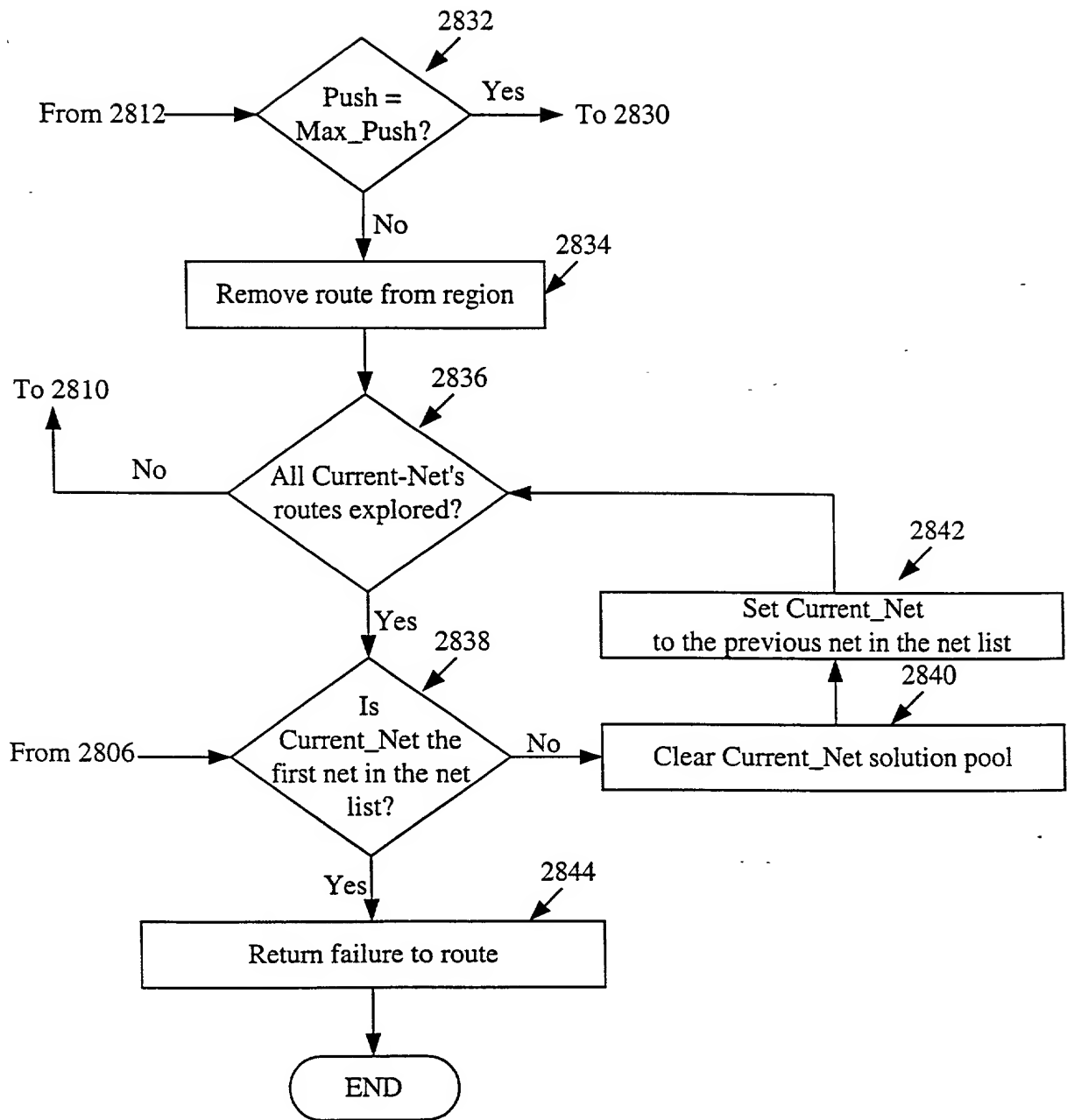


Figure 28C

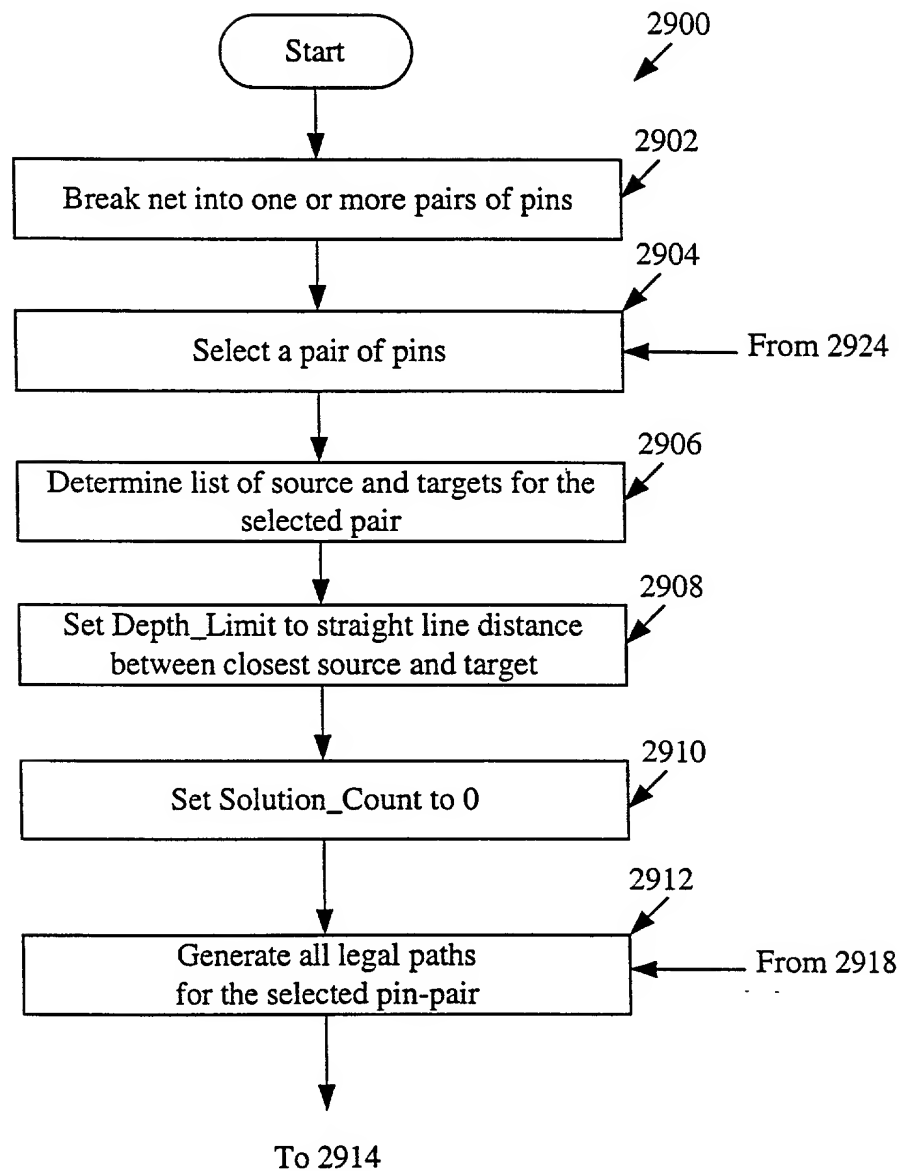


Figure 29A

Figure 29: $\frac{\text{Figure 29A}}{\text{Figure 29B}}$

1005655.03106

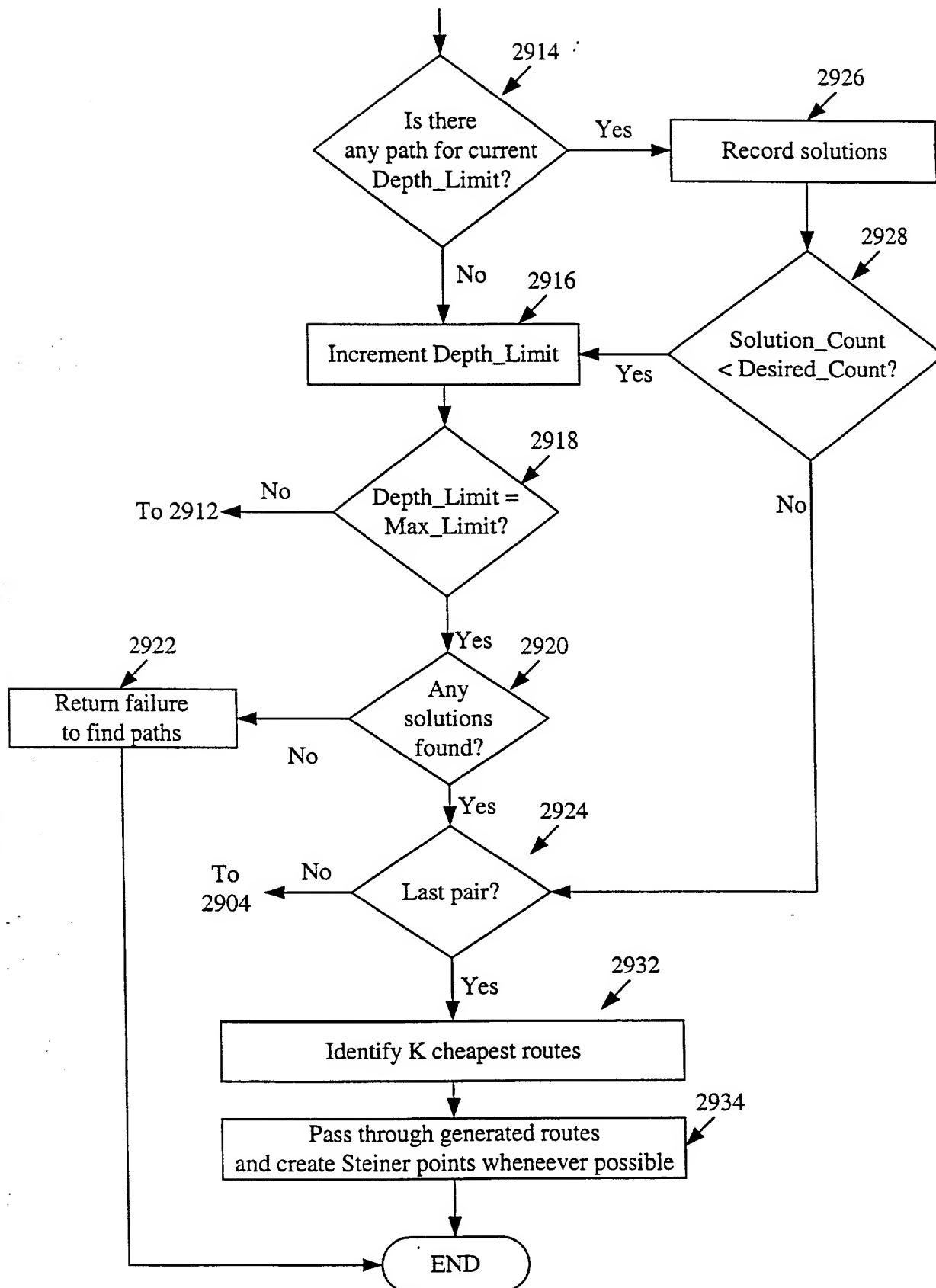


Figure 29B

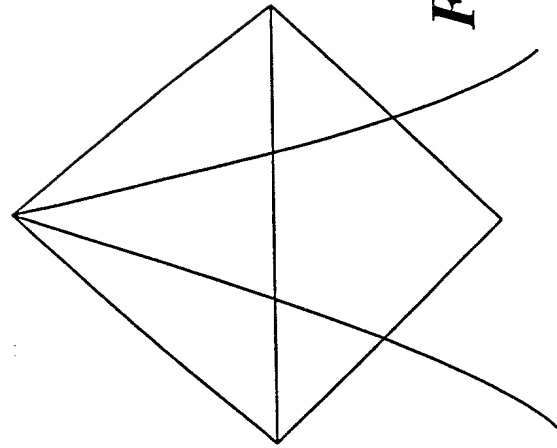


Figure 30A

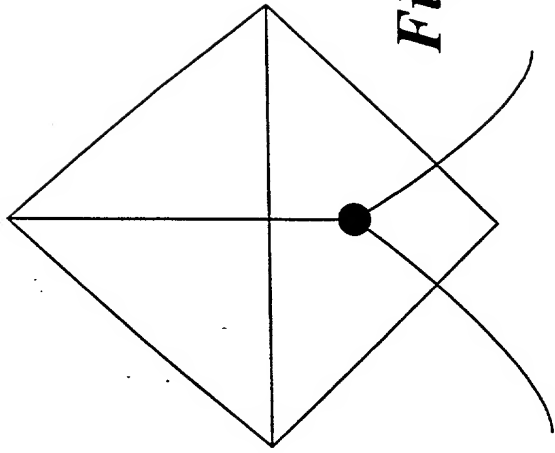


Figure 30B

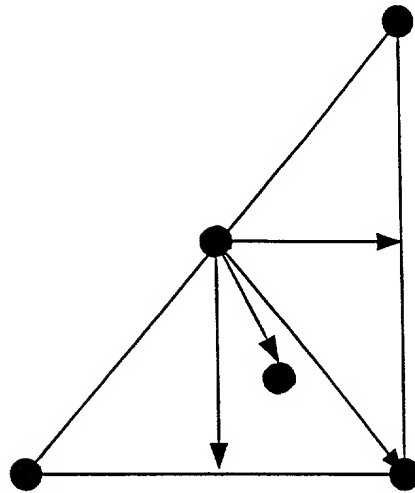


Figure 32

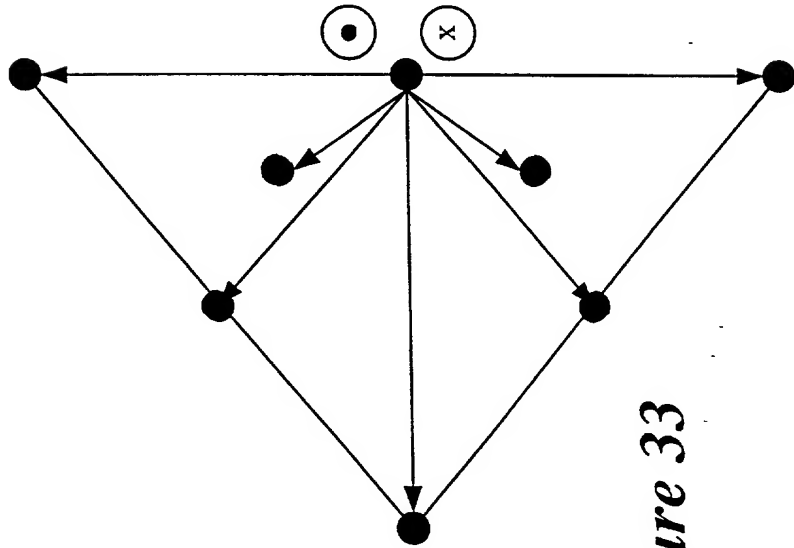


Figure 33

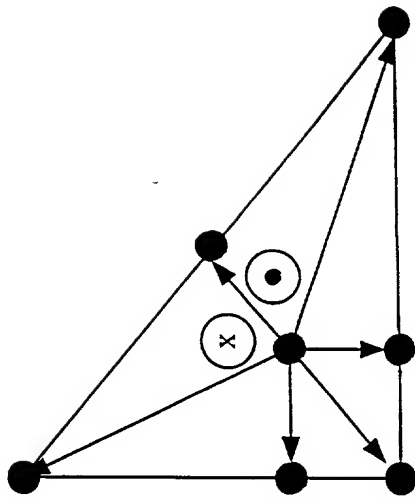


Figure 34

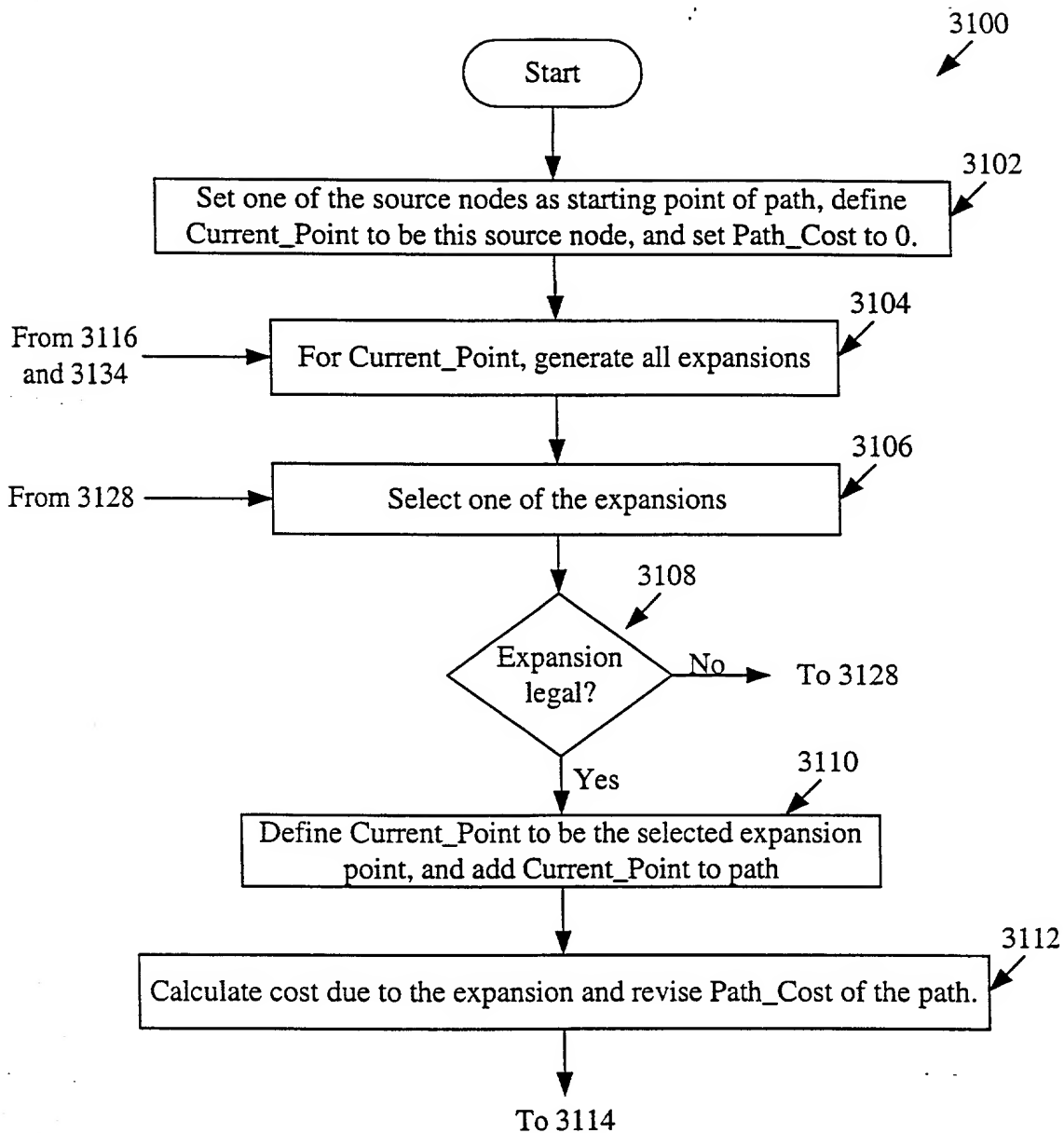


Figure 31A

Figure 31: $\frac{\text{Figure 31A}}{\text{Figure 31B}}$

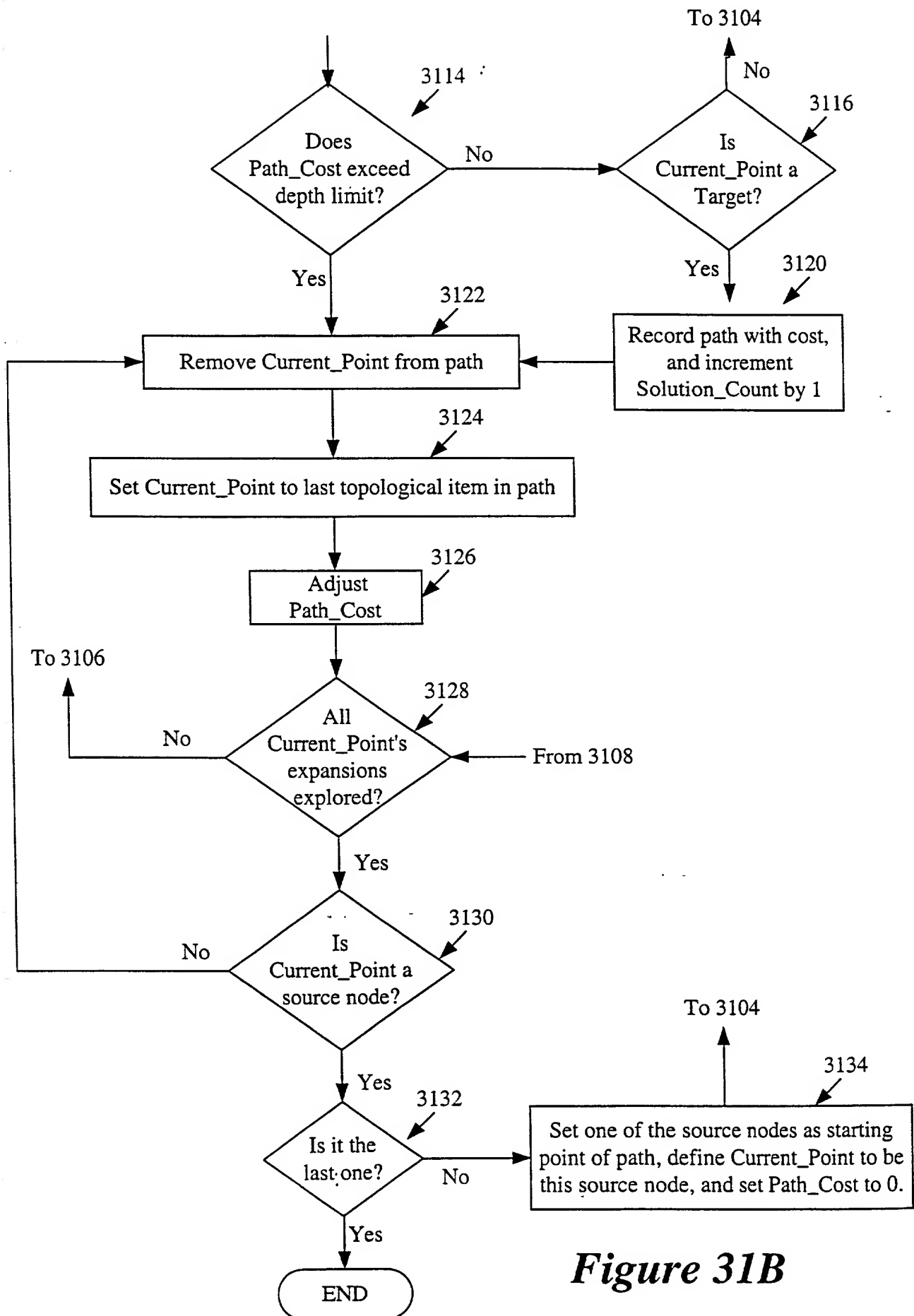


Figure 31B

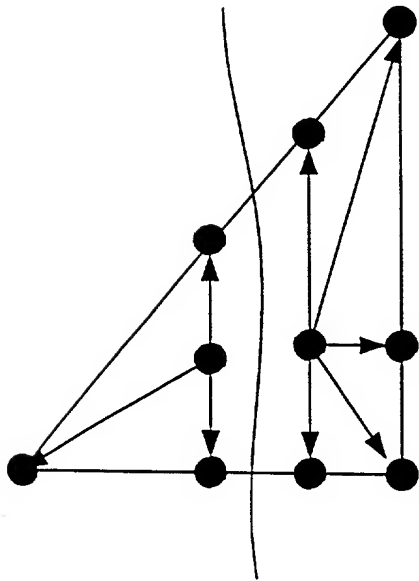


Figure 35

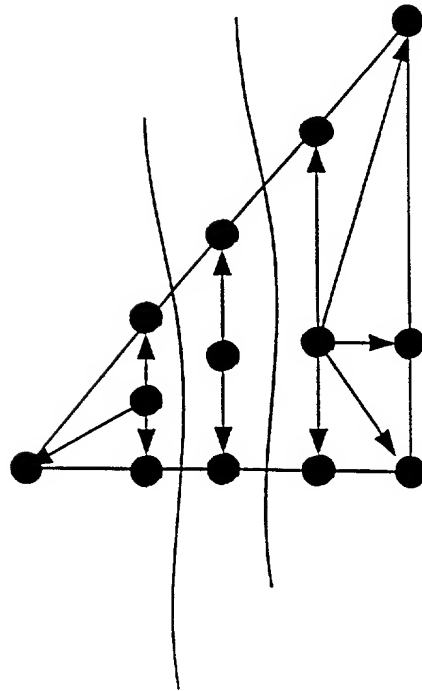


Figure 36

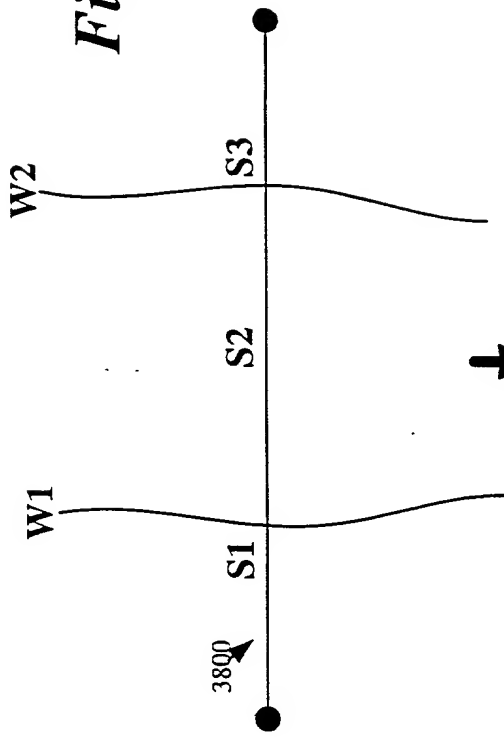


Figure 38A

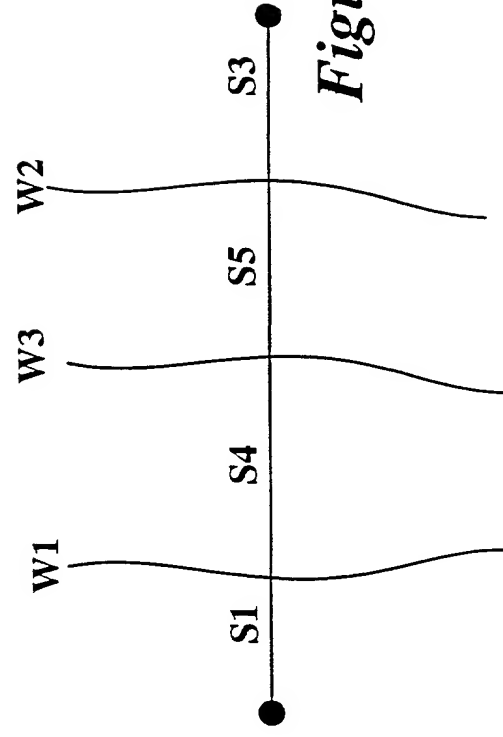


Figure 38B

| To: From: | | Node | Face Item | Edge Item |
|-----------|-----------|--|--|--|
| Node | Node | <ul style="list-style-type: none">• Planarity• Vias | <ul style="list-style-type: none">• Vias | <ul style="list-style-type: none">• Planarity• Vias• Edge• Capacity |
| | Face Item | <ul style="list-style-type: none">• Vias | <ul style="list-style-type: none">• Vias | <ul style="list-style-type: none">• Vias• Edge• Capacity |
| | Edge Item | <ul style="list-style-type: none">• Planarity• Vias | <ul style="list-style-type: none">• Vias | <ul style="list-style-type: none">• Planarity• Vias• Edge• Capacity |

Figure 37

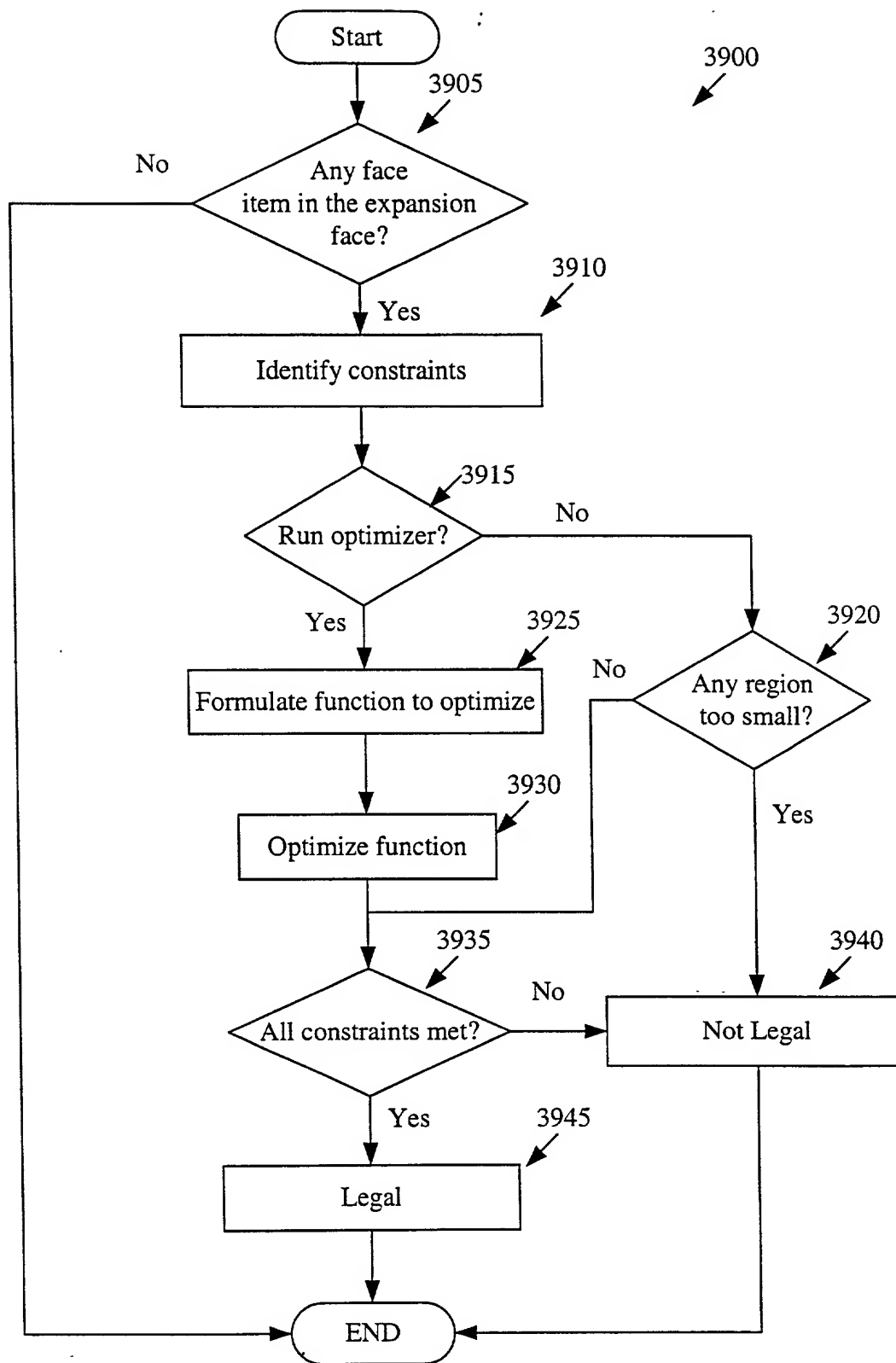


Figure 39A

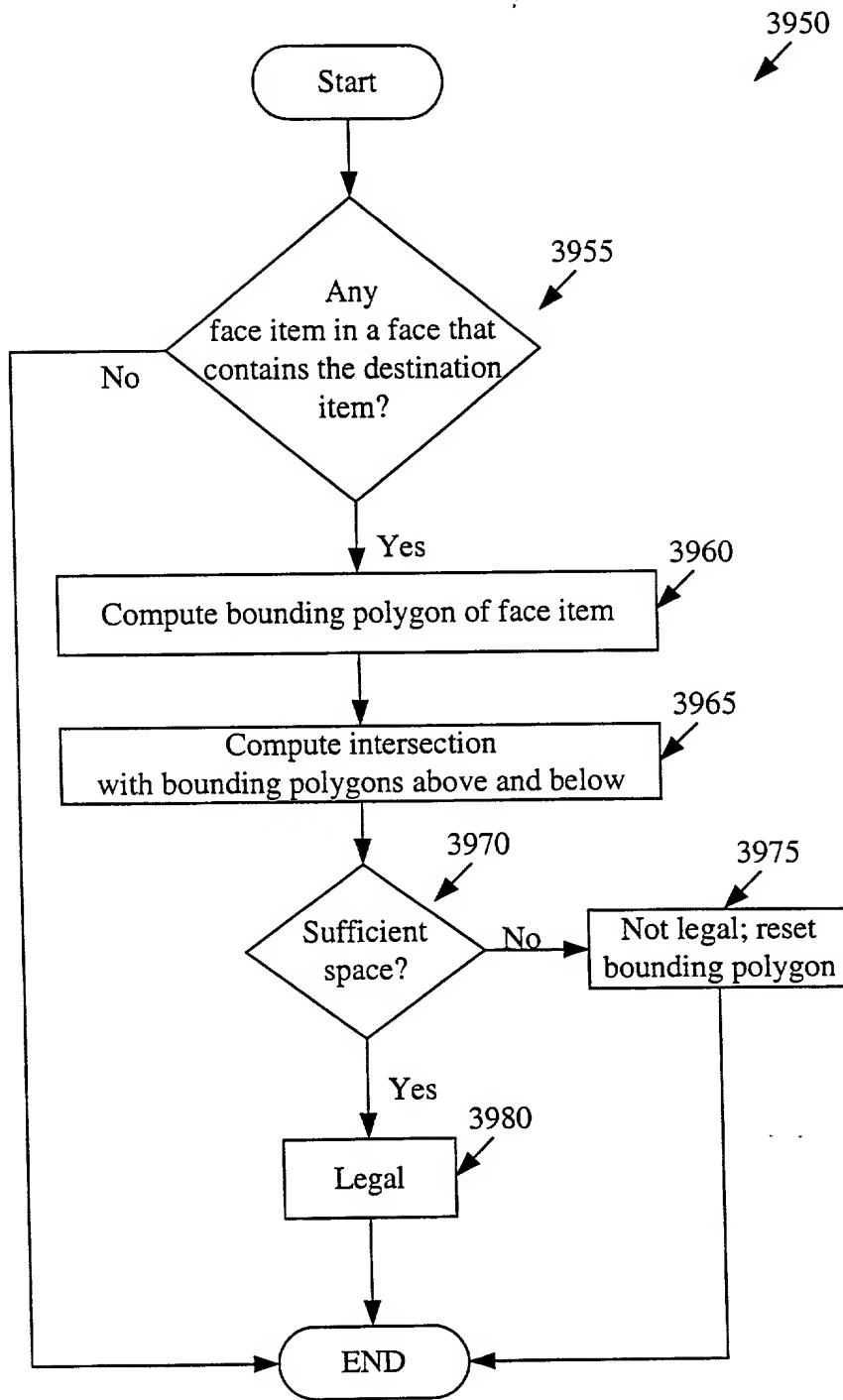


Figure 39B

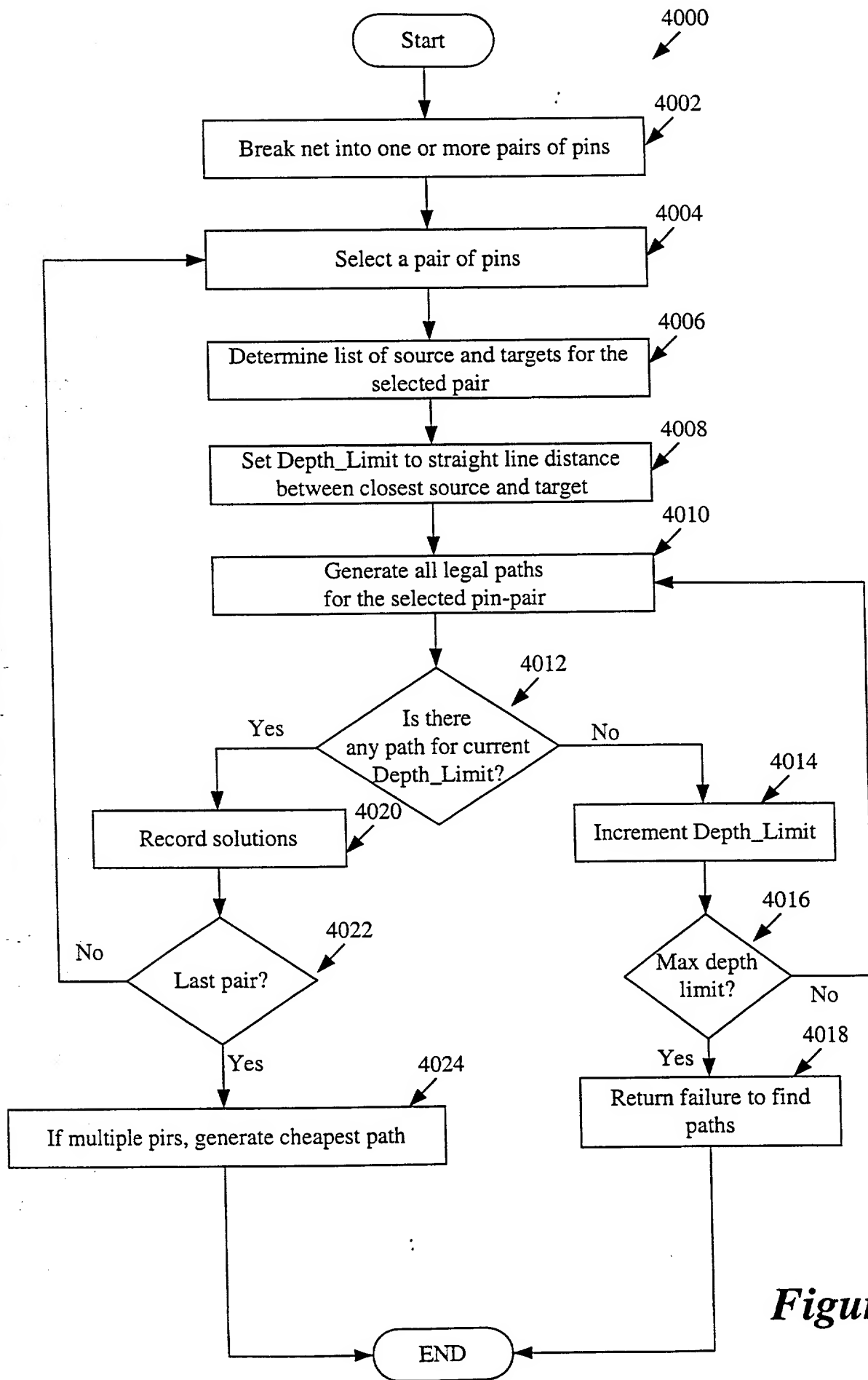


Figure 40

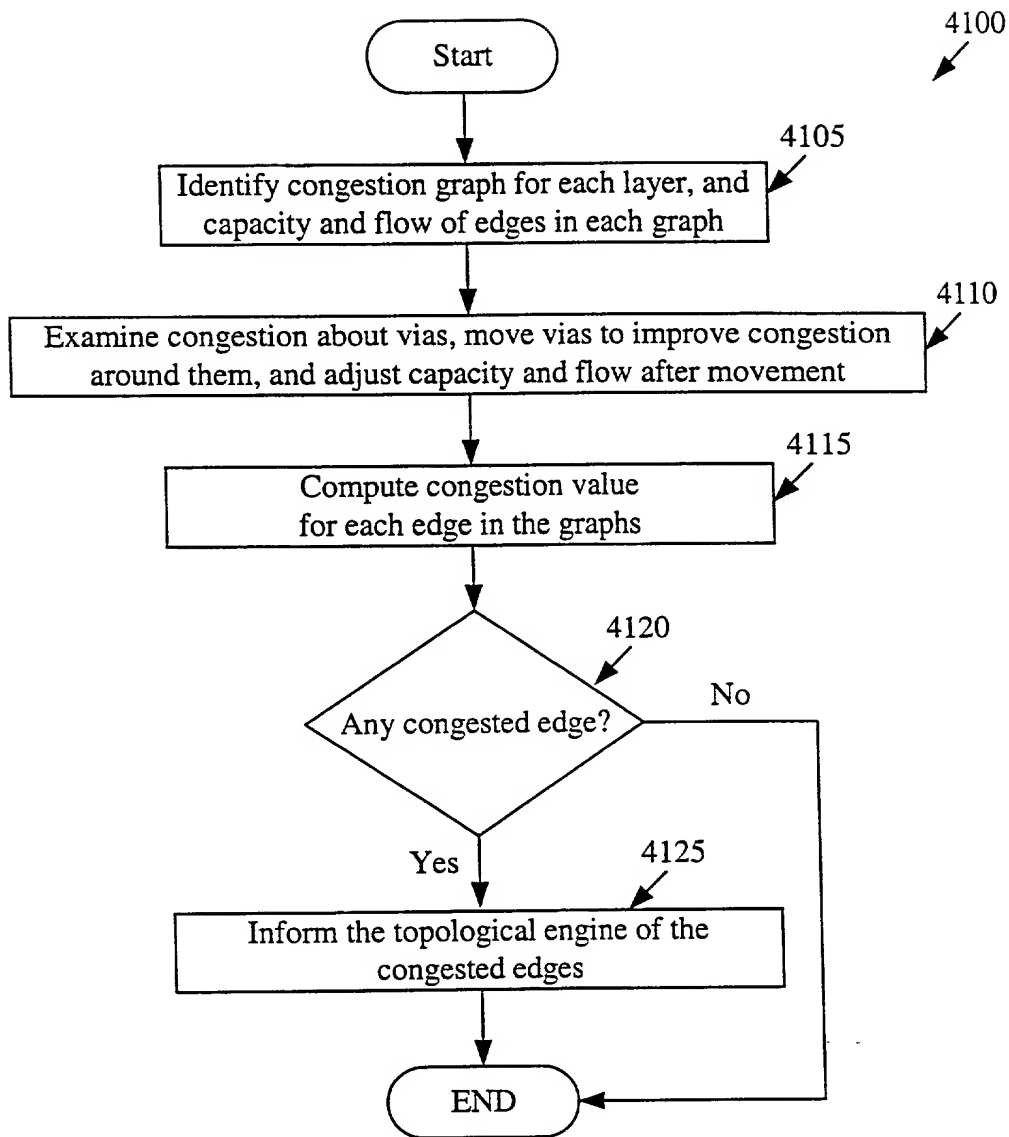


Figure 41

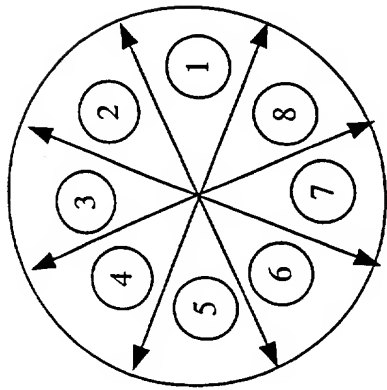


Figure 42

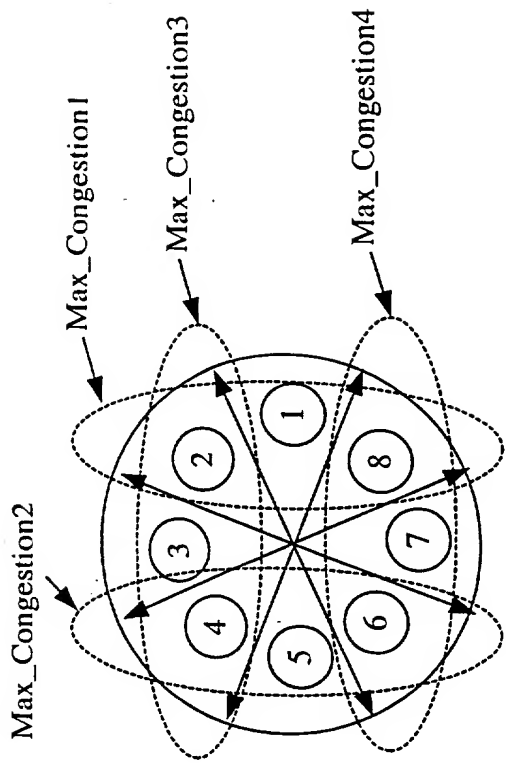


Figure 44

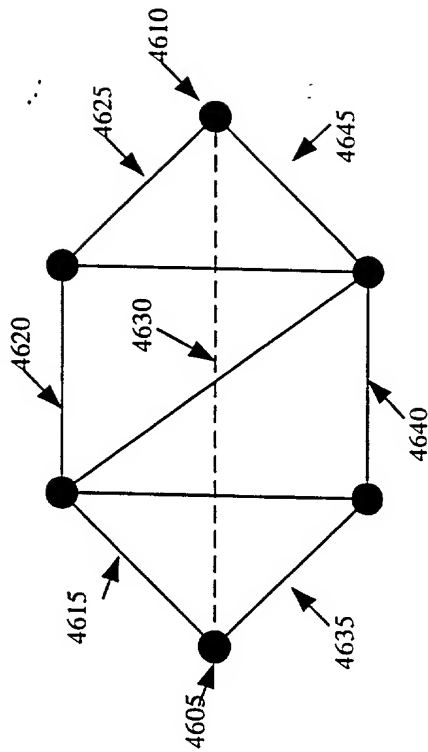


Figure 46

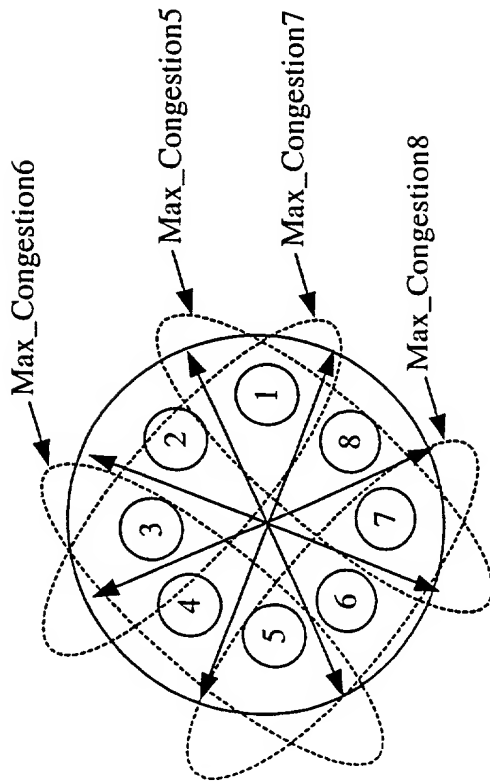


Figure 45

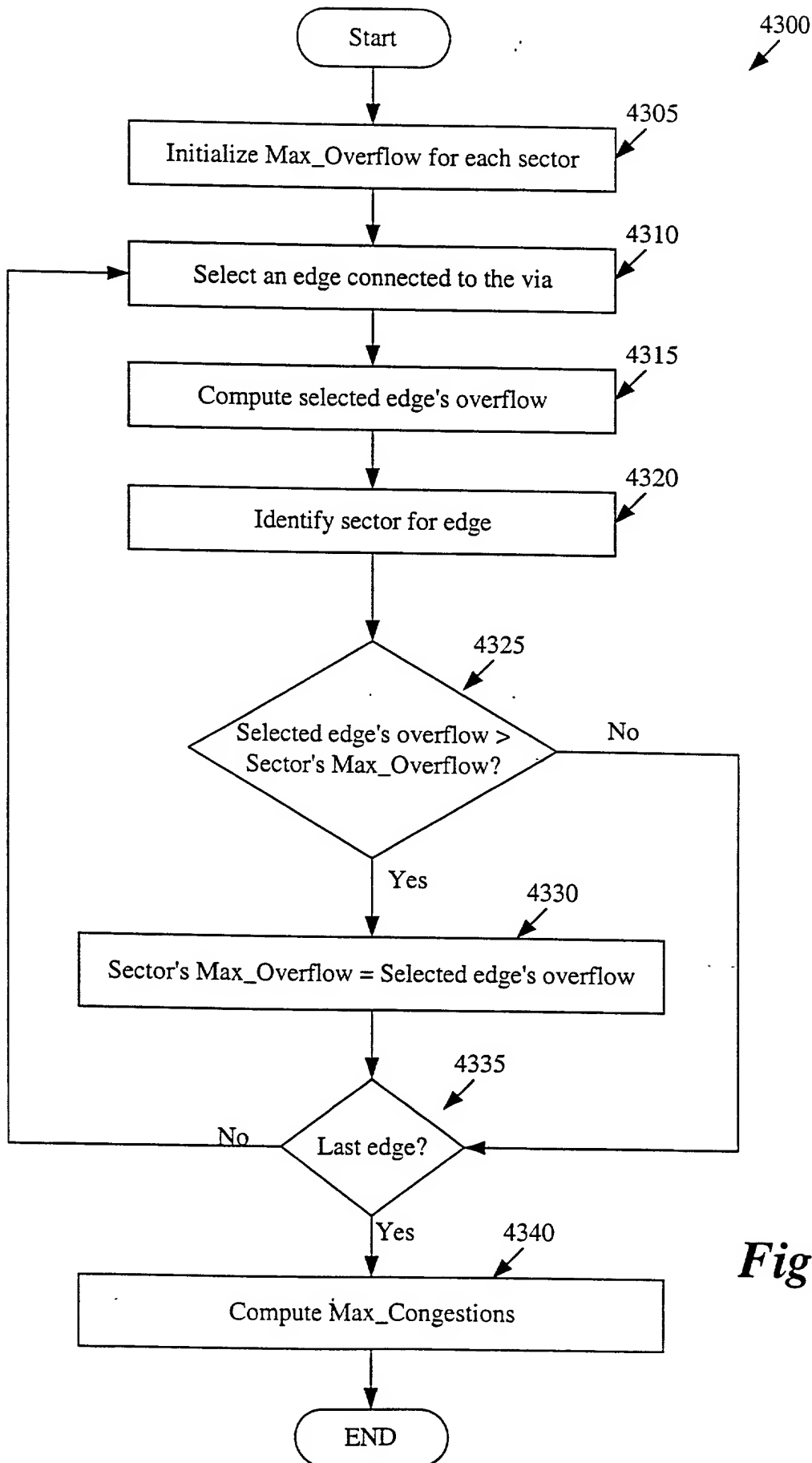


Figure 43

A hand-drawn diagram of a building layout. The diagram is enclosed in a rectangular border. It features two main rooms. The room on the left is labeled '4710' and contains a square. The room on the right is labeled '4705' and contains a square. The diagram shows a complex arrangement of lines and points representing the building's structure.

FIGURE 47

1065096.013402

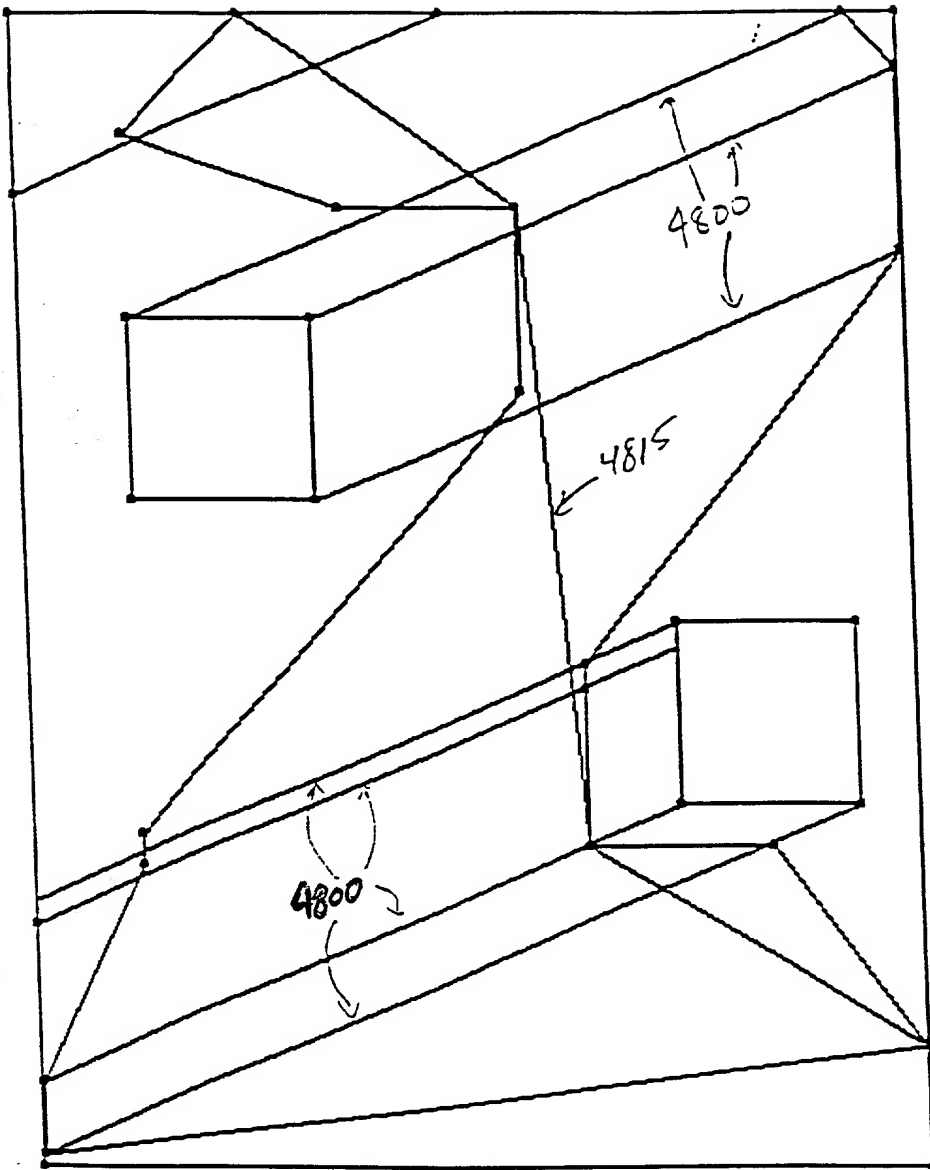


FIGURE 48A

10066095.013402

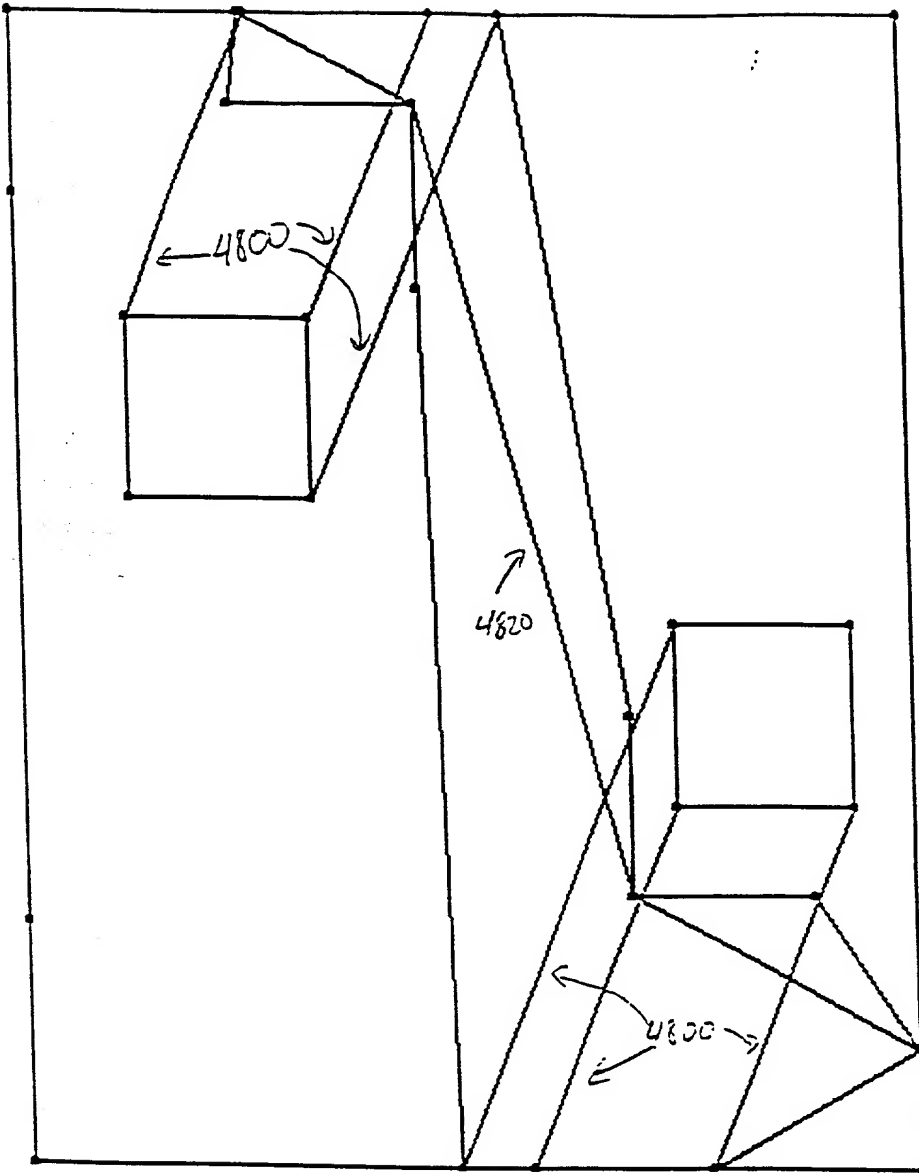


FIGURE 48B

10056095.013102

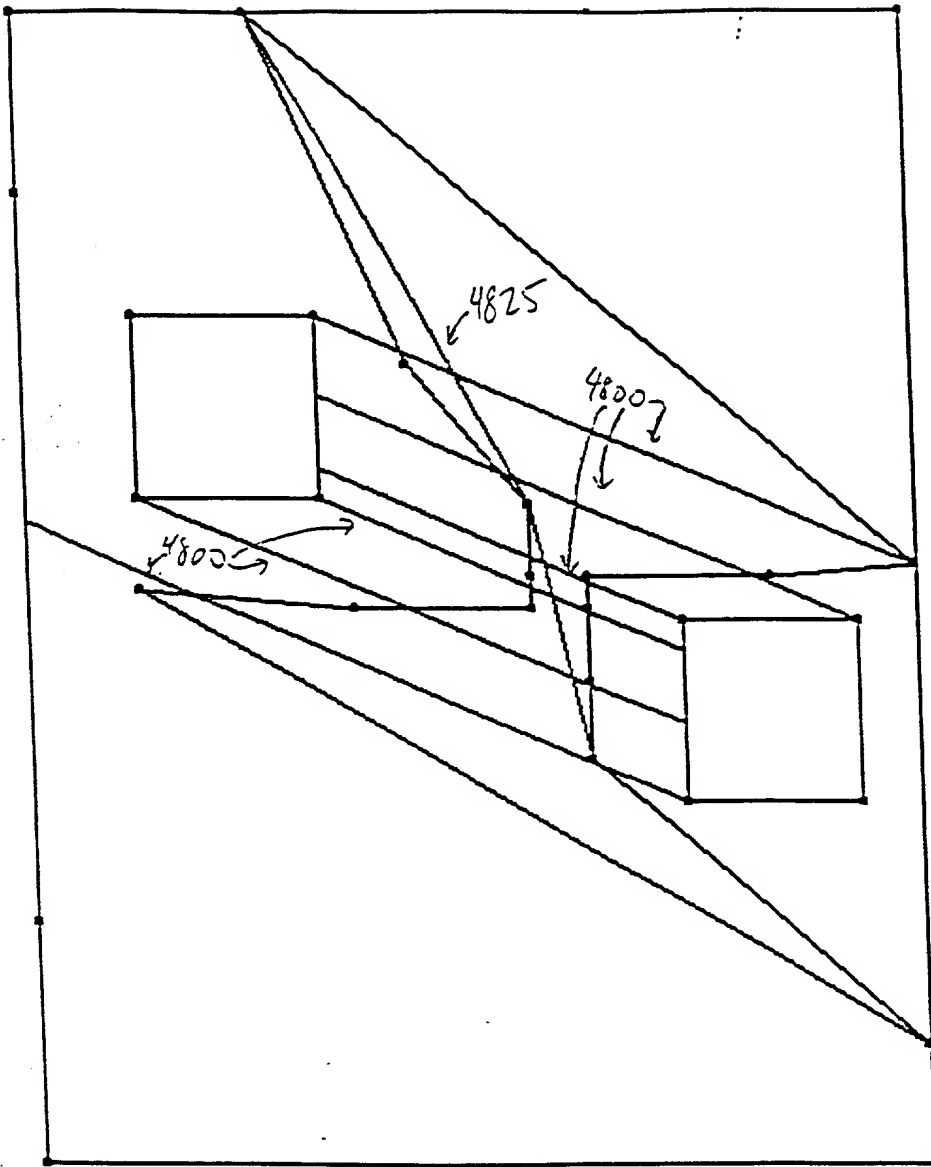


FIGURE 48C

10065095.013102

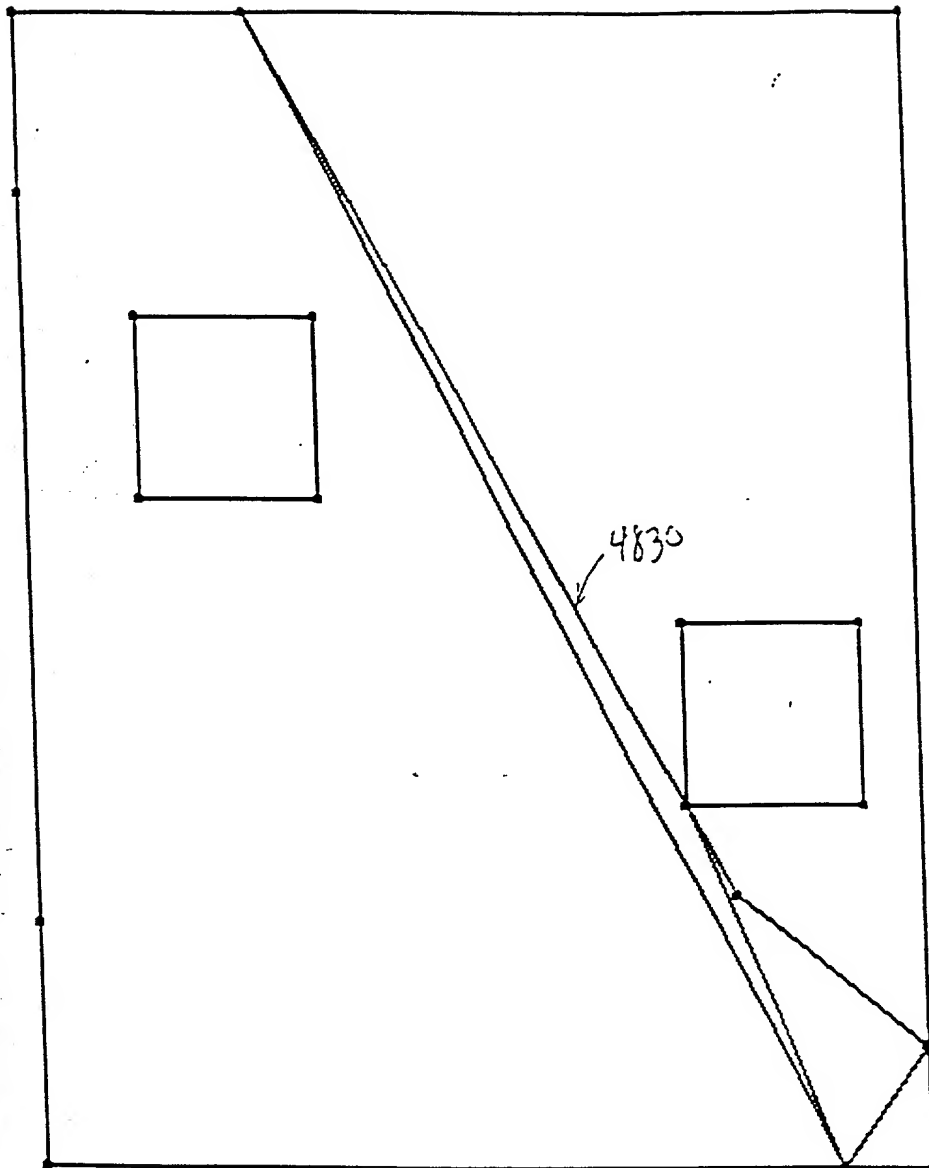


FIGURE 48D



Figure 49A

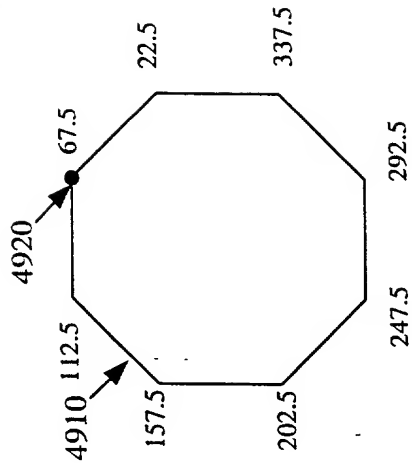


Figure 49B

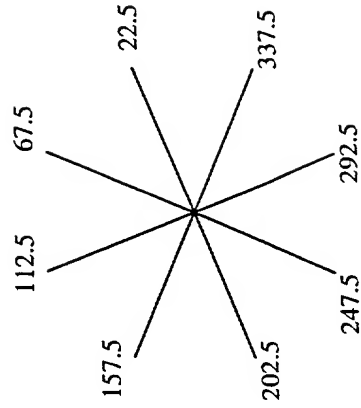


Figure 49C

10066055.013402

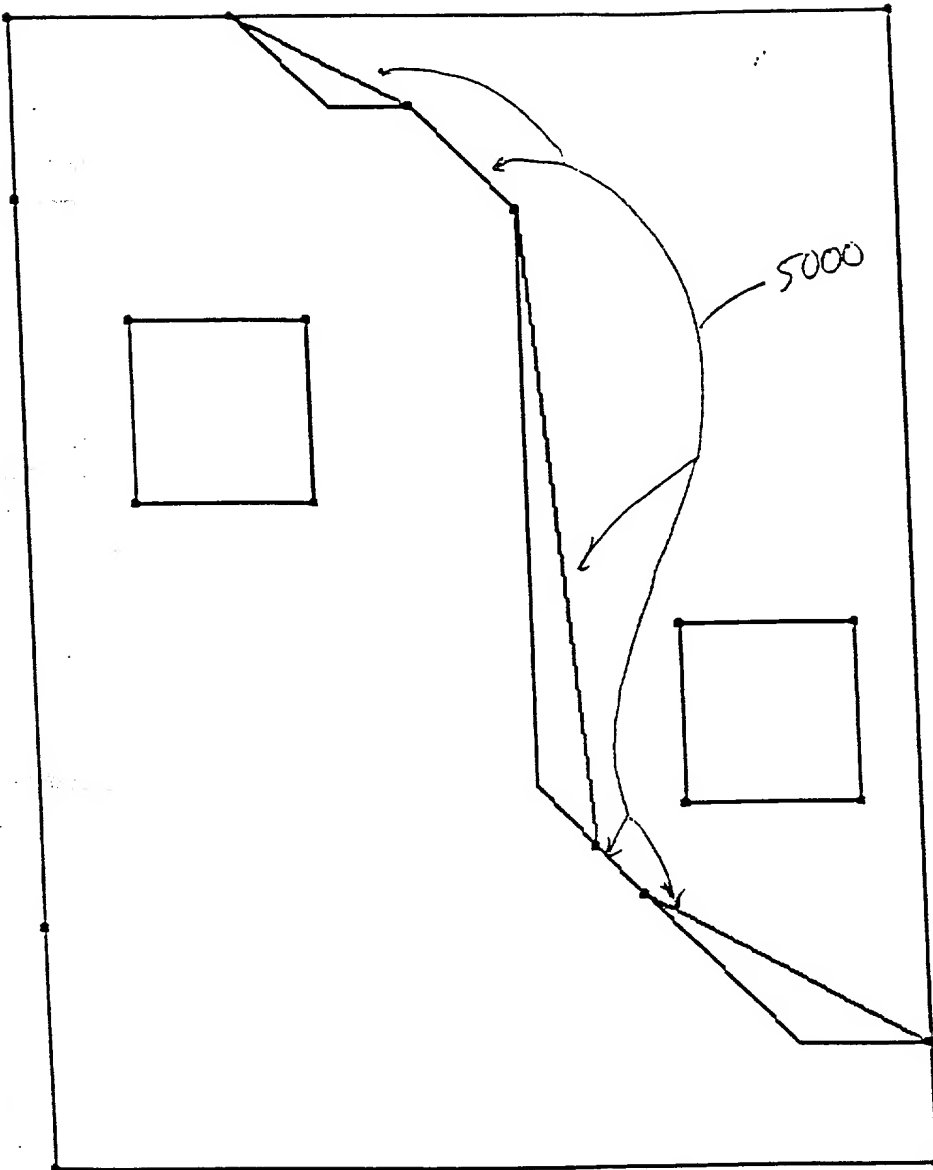


FIGURE 50

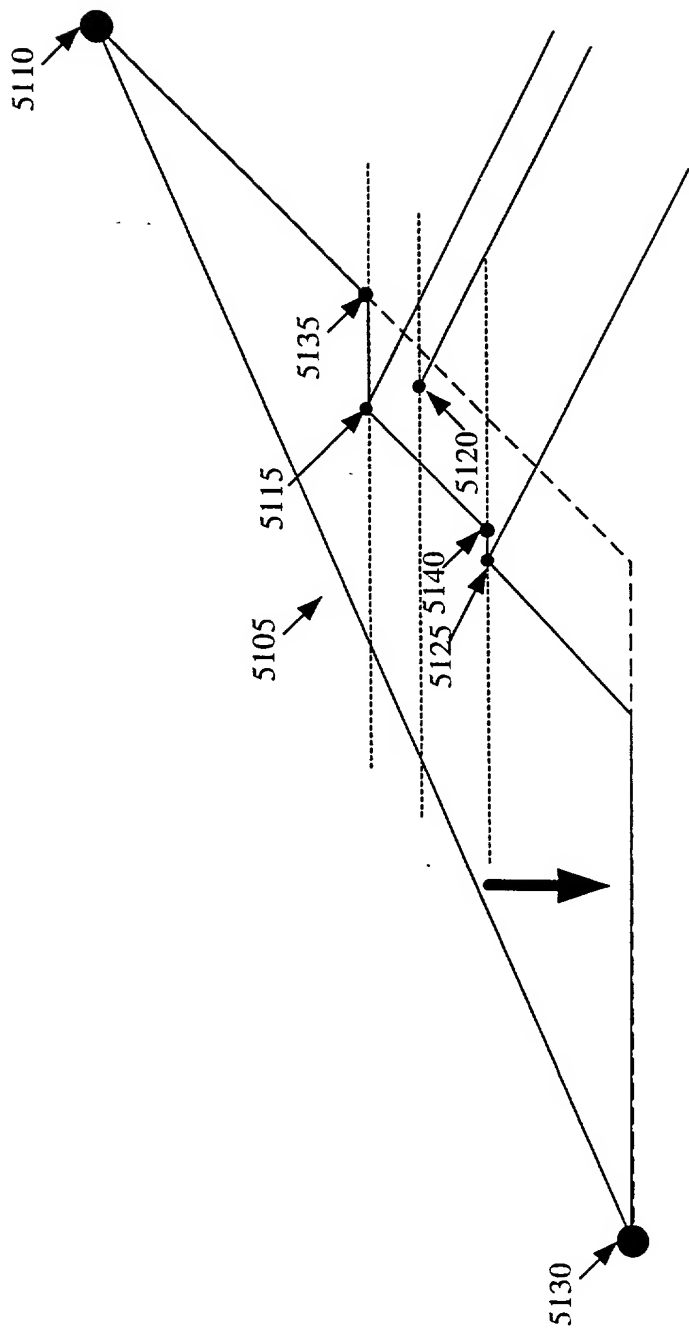


Figure 51

1006055:043102

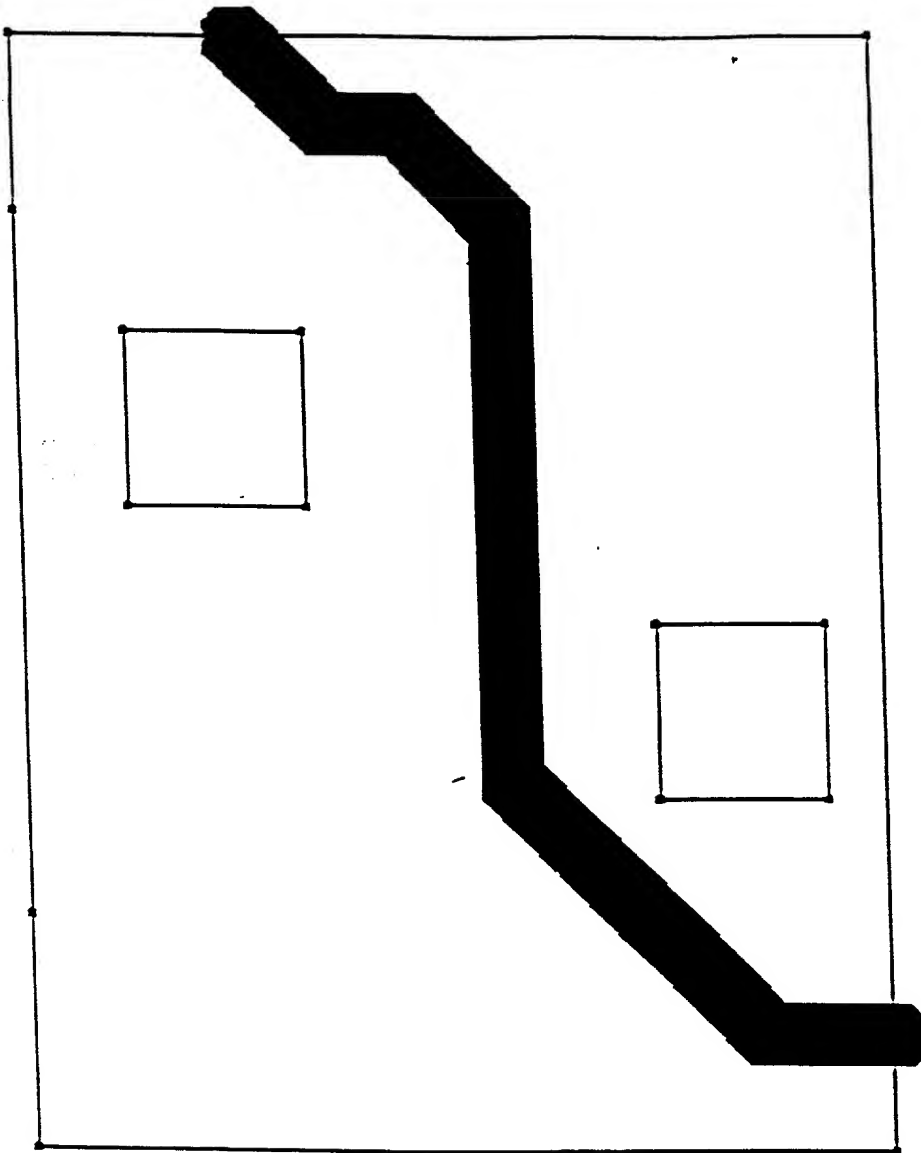


FIGURE 52

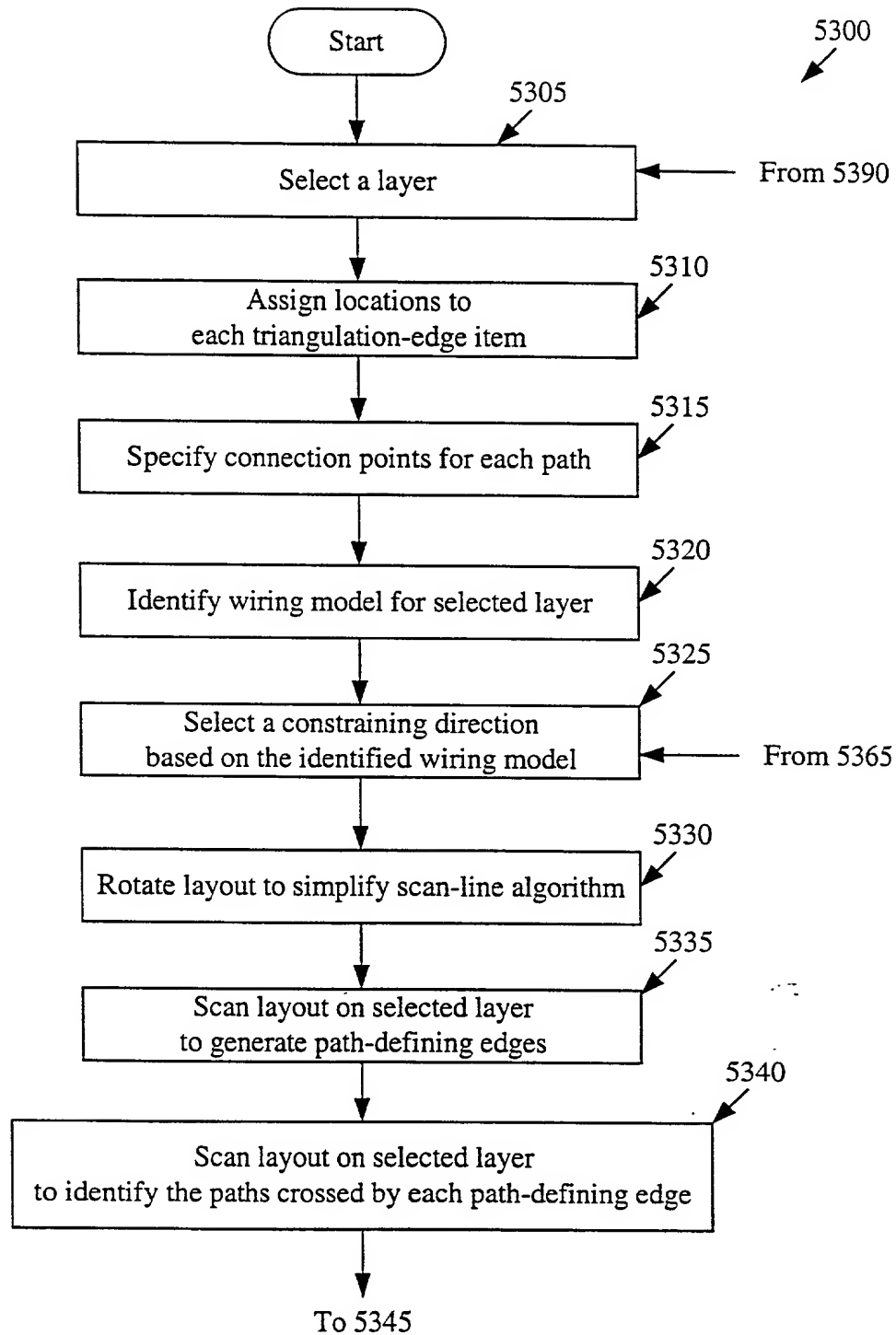


Figure 53

Figure 53: *Figure 53A*
Figure 53B

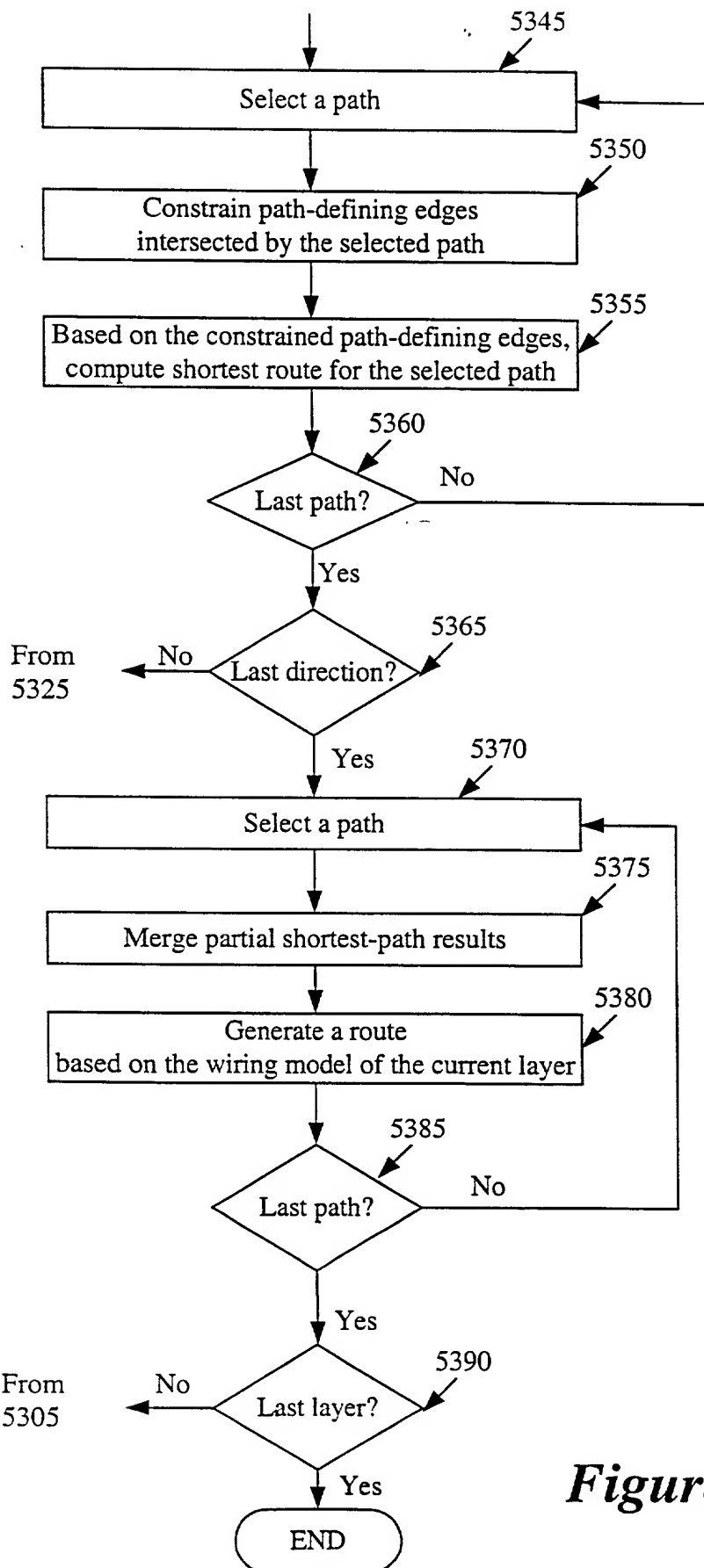


Figure 53B

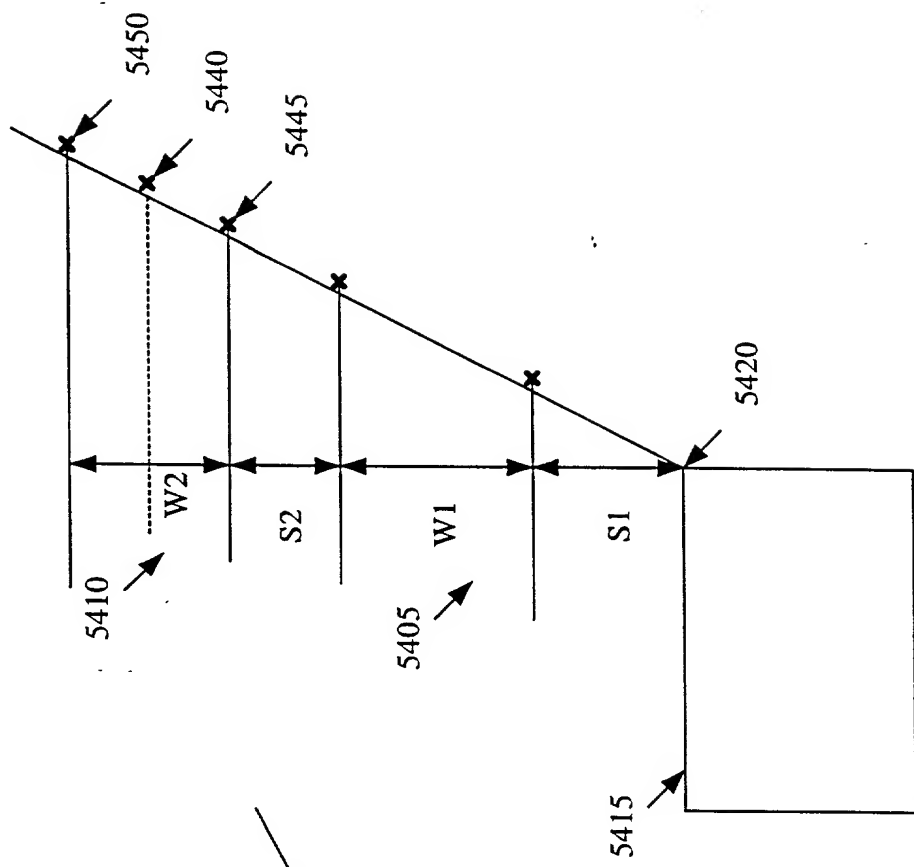


Figure 54

Figure 55

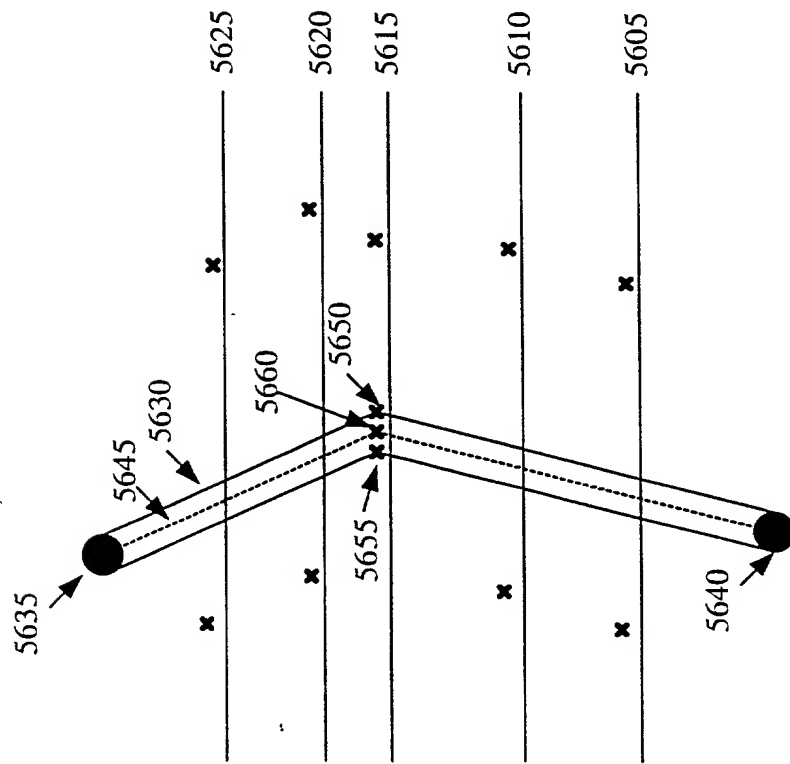


Figure 56

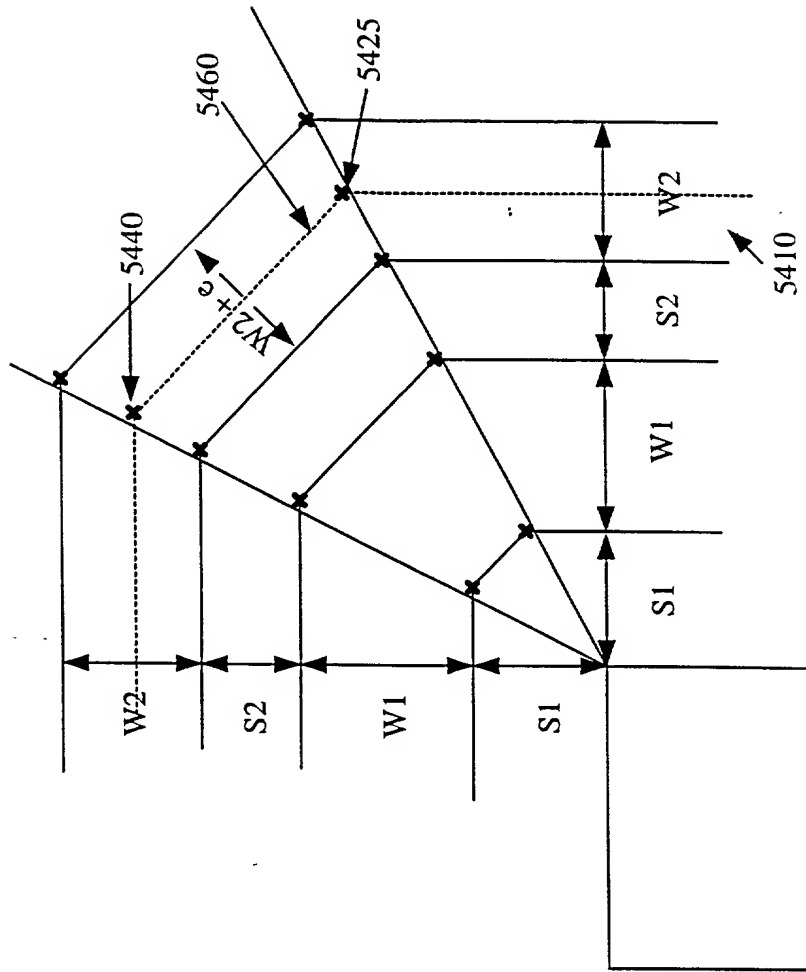


Figure 57

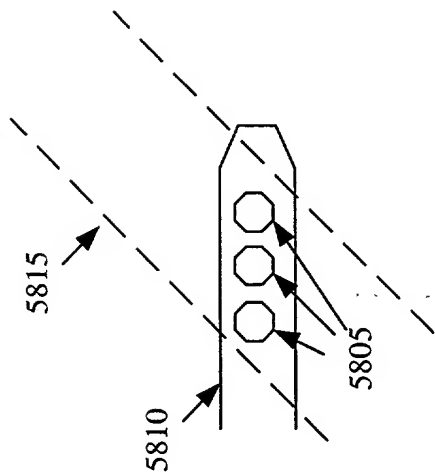


Figure 58

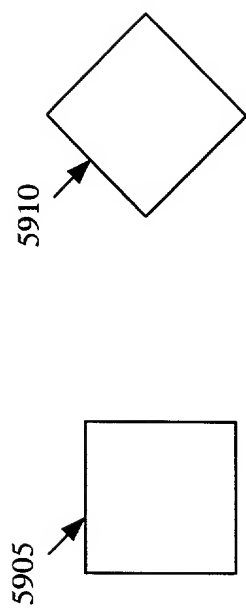


Figure 59

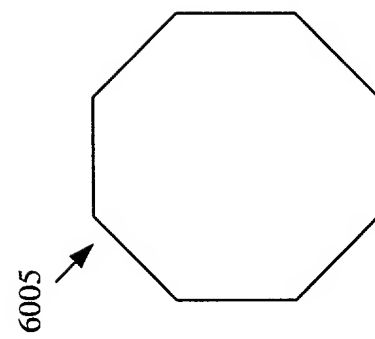


Figure 60

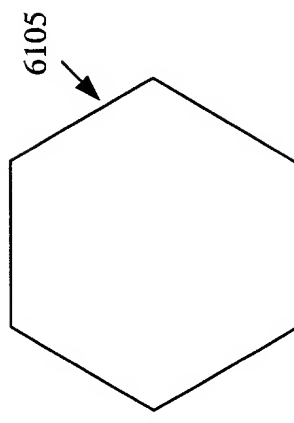


Figure 61

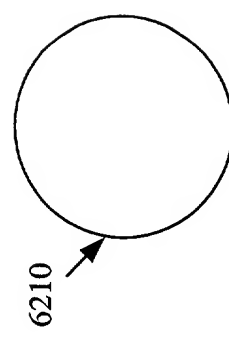


Figure 62

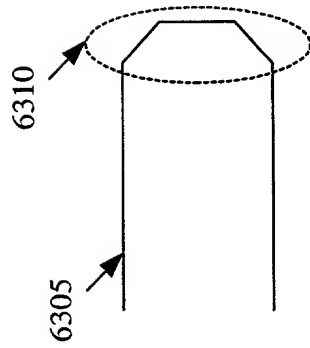


Figure 63

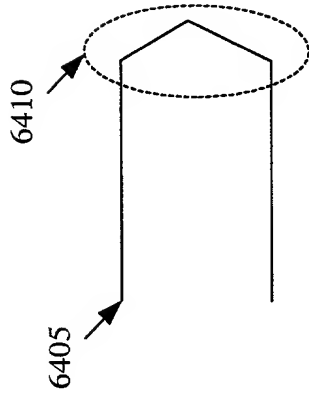


Figure 64

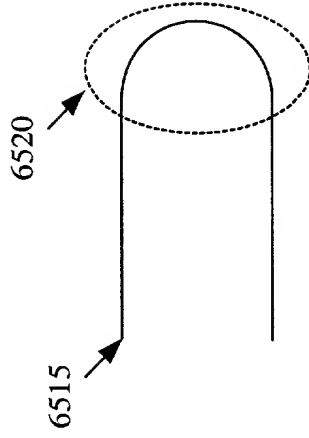
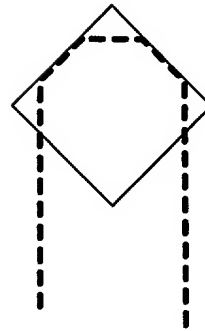


Figure 65

(1)



(2)



(3)

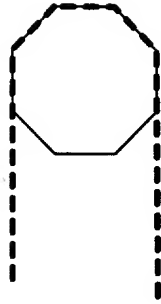
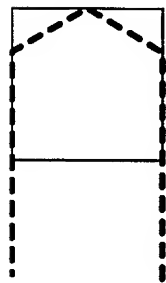


Figure 66

(1)



(2)

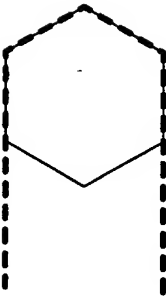


Figure 67

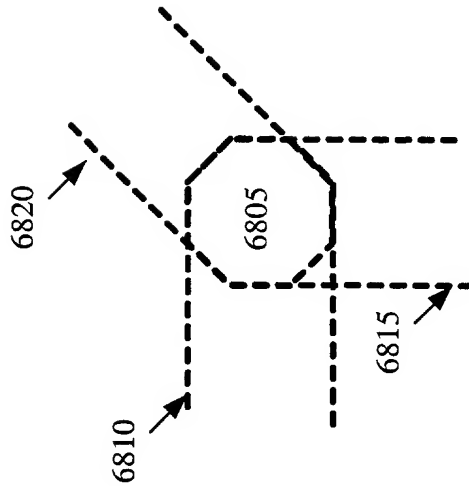


Figure 68

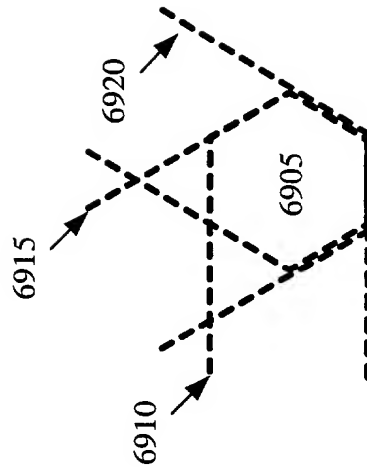


Figure 69

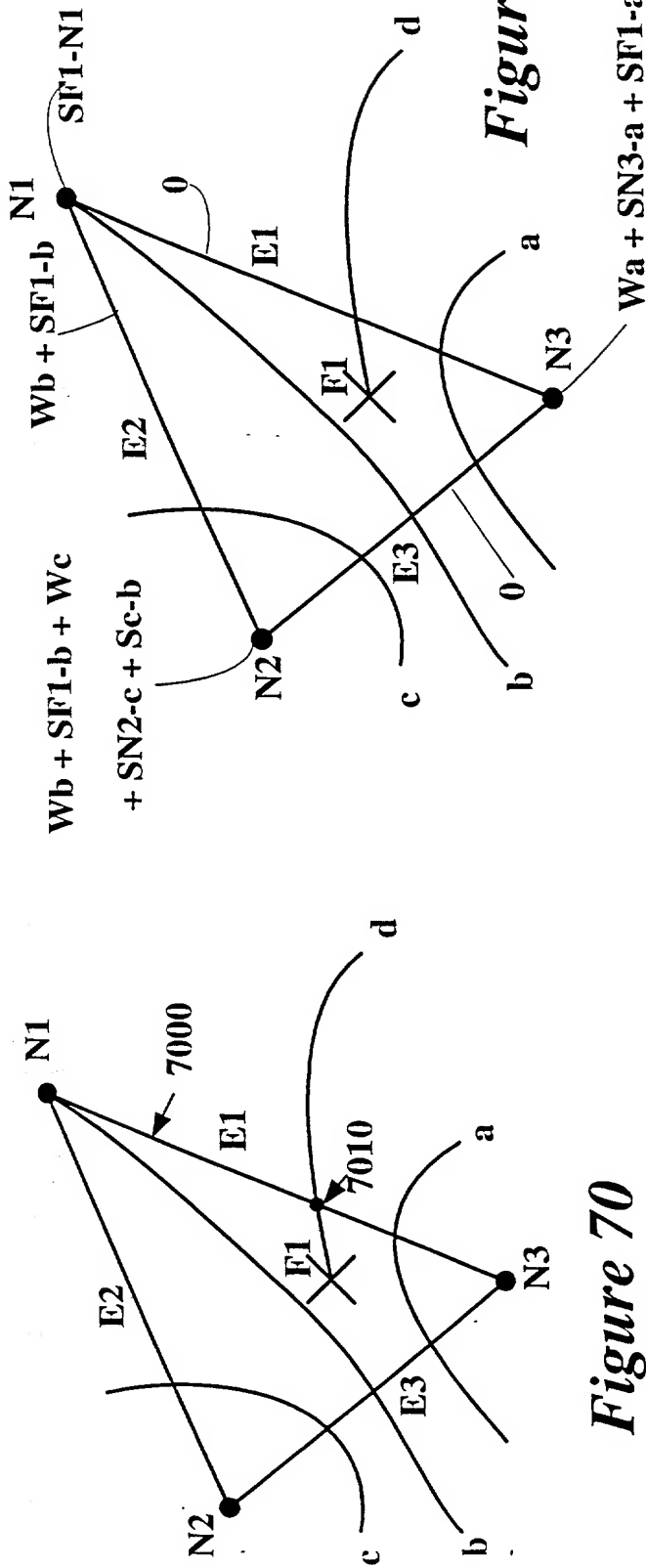


Figure 70

Figure 71

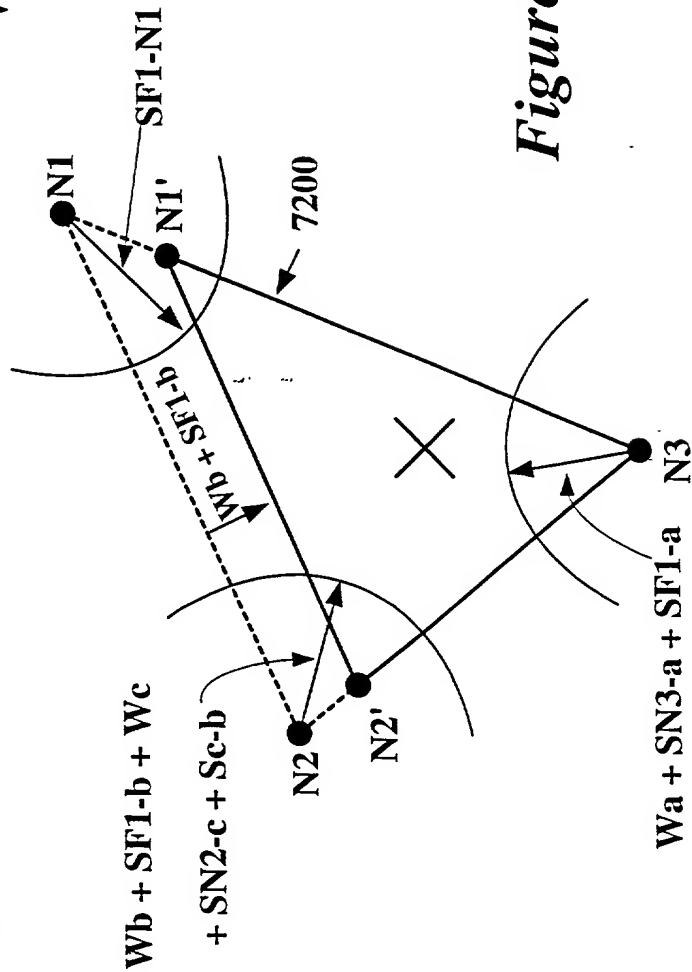
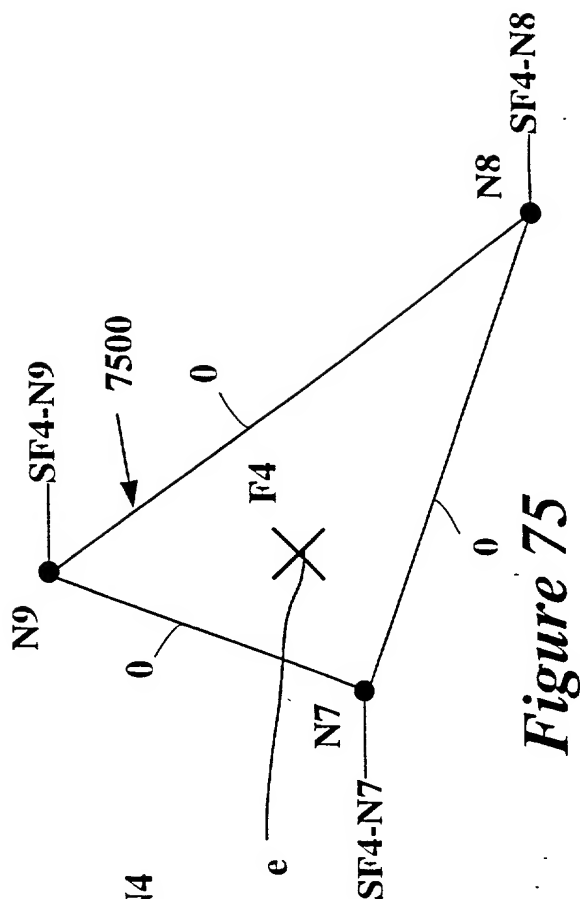
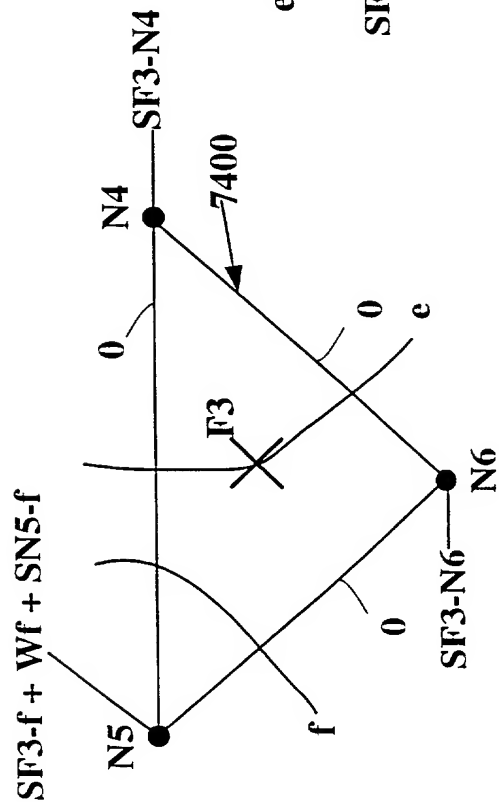
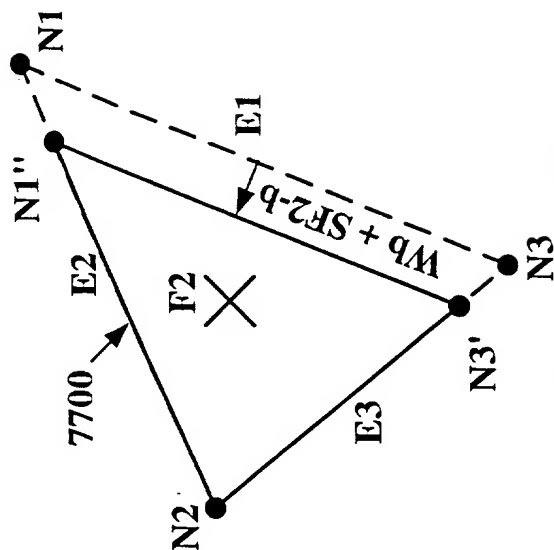


Figure 72



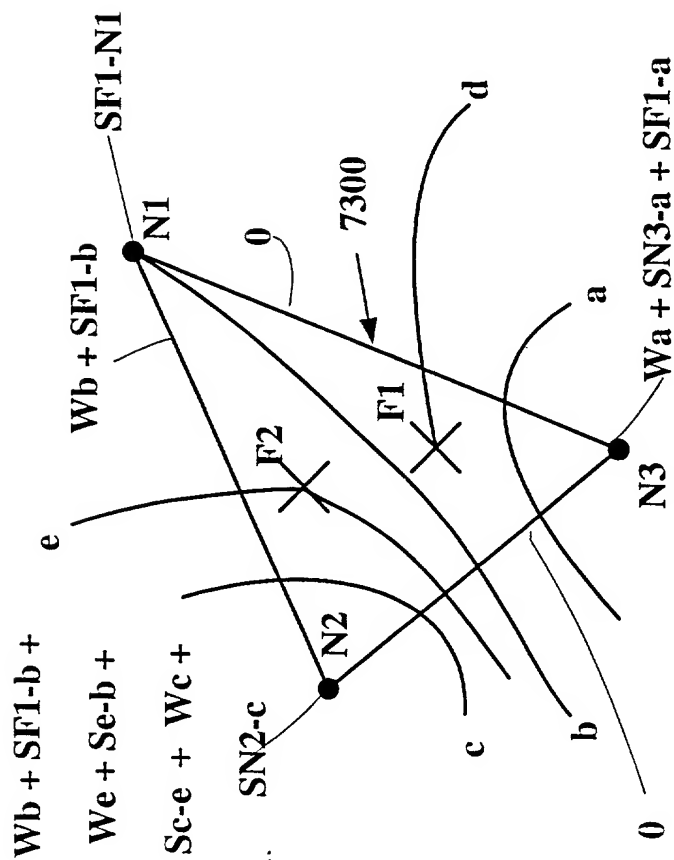


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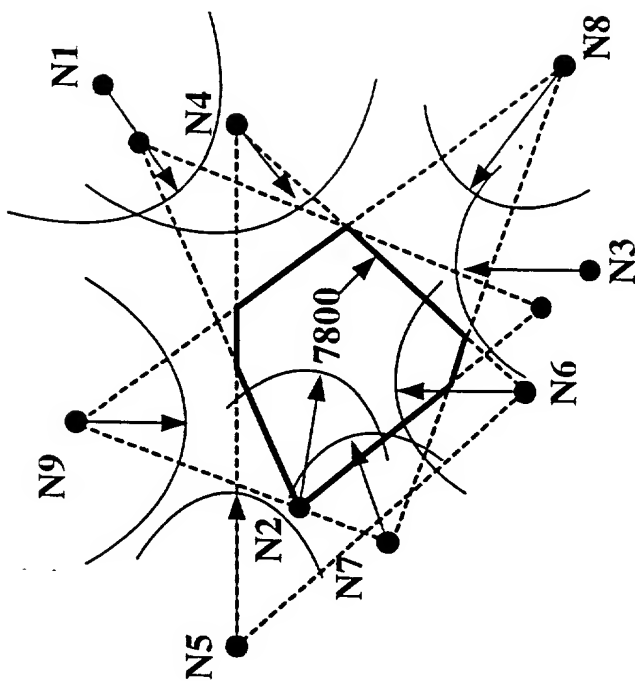


Figure 78

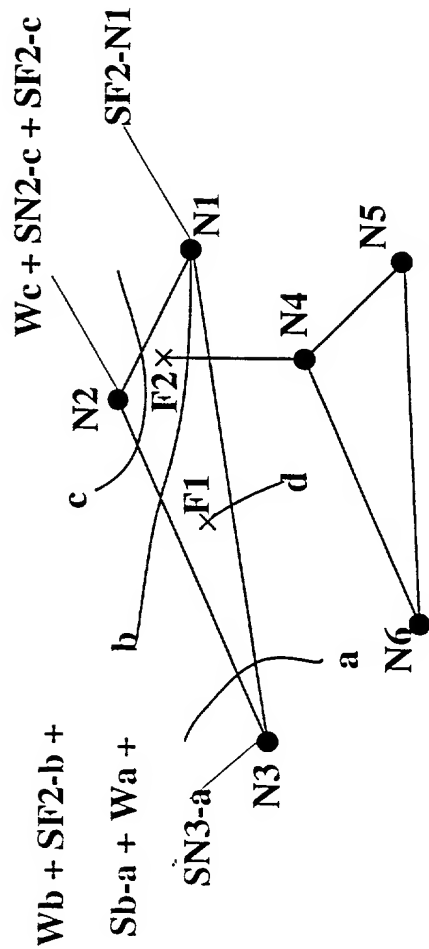


Figure 81

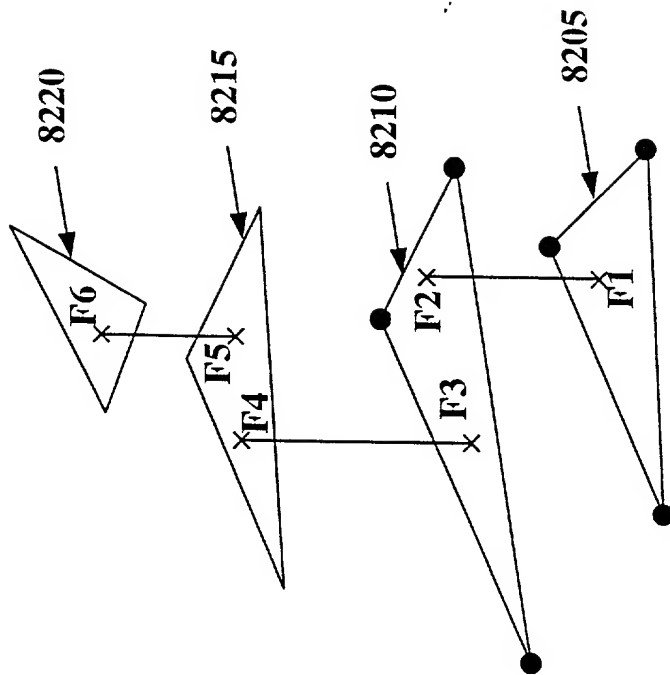


Figure 82

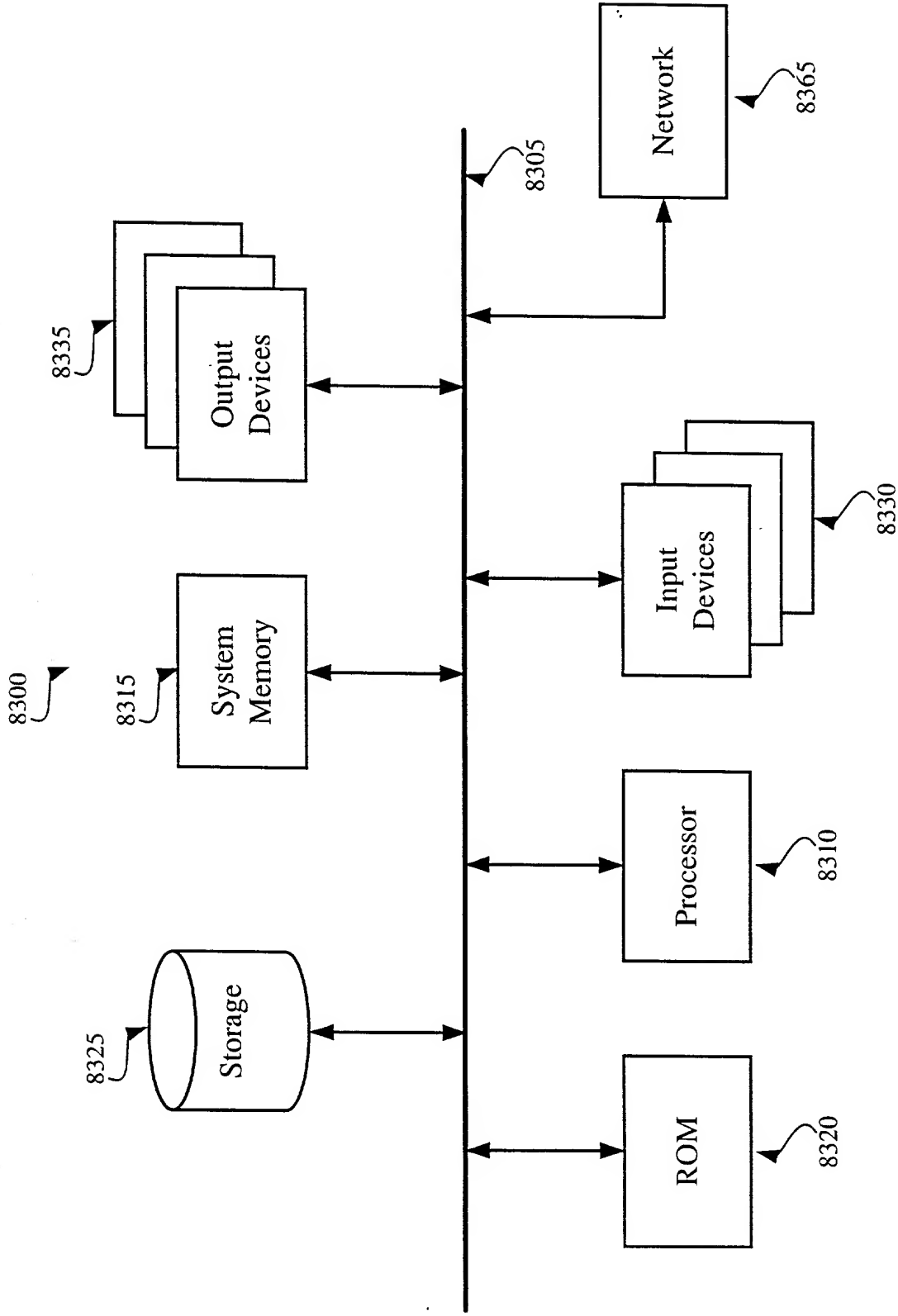


Figure 83